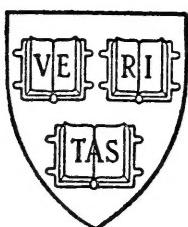
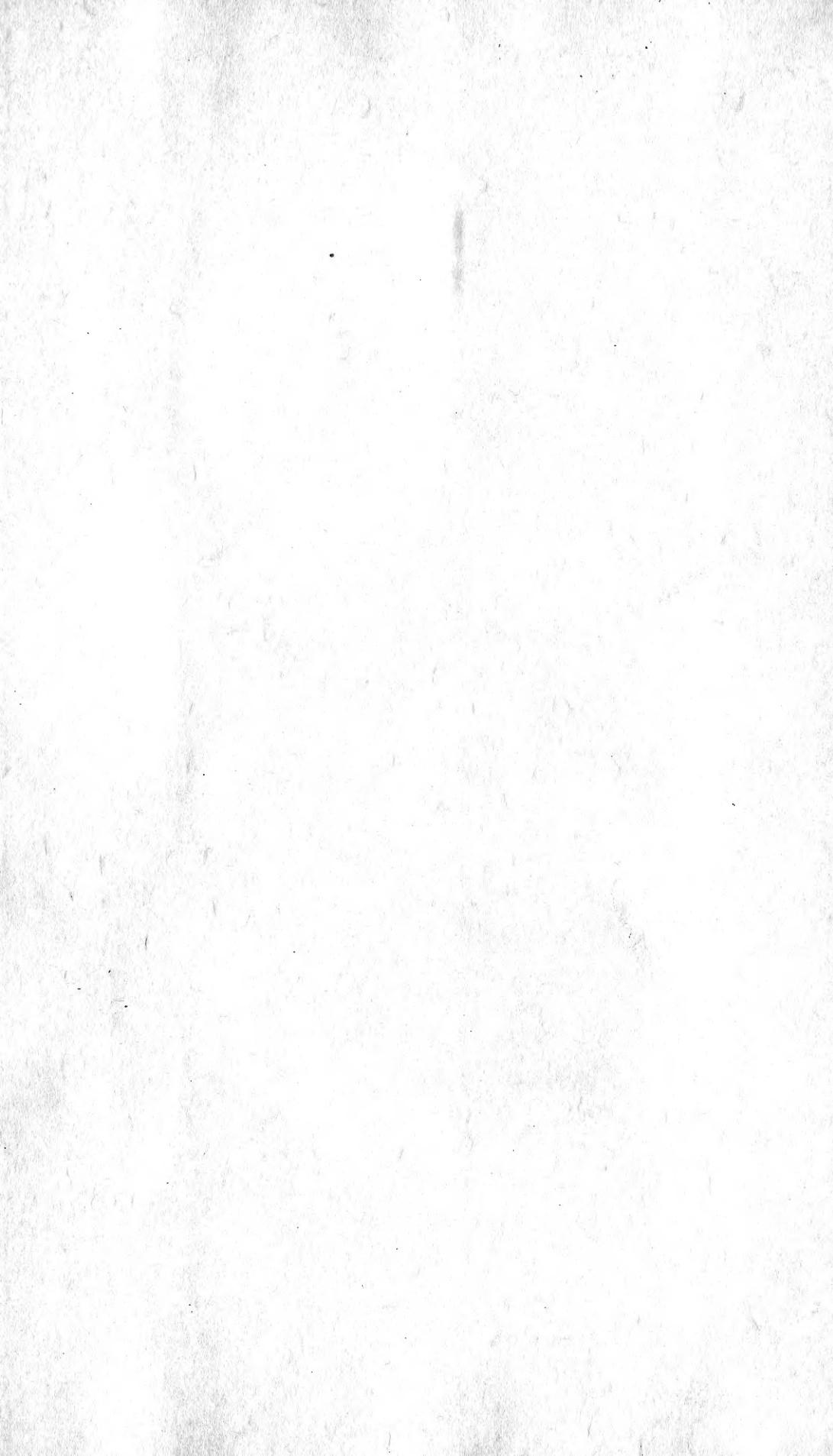


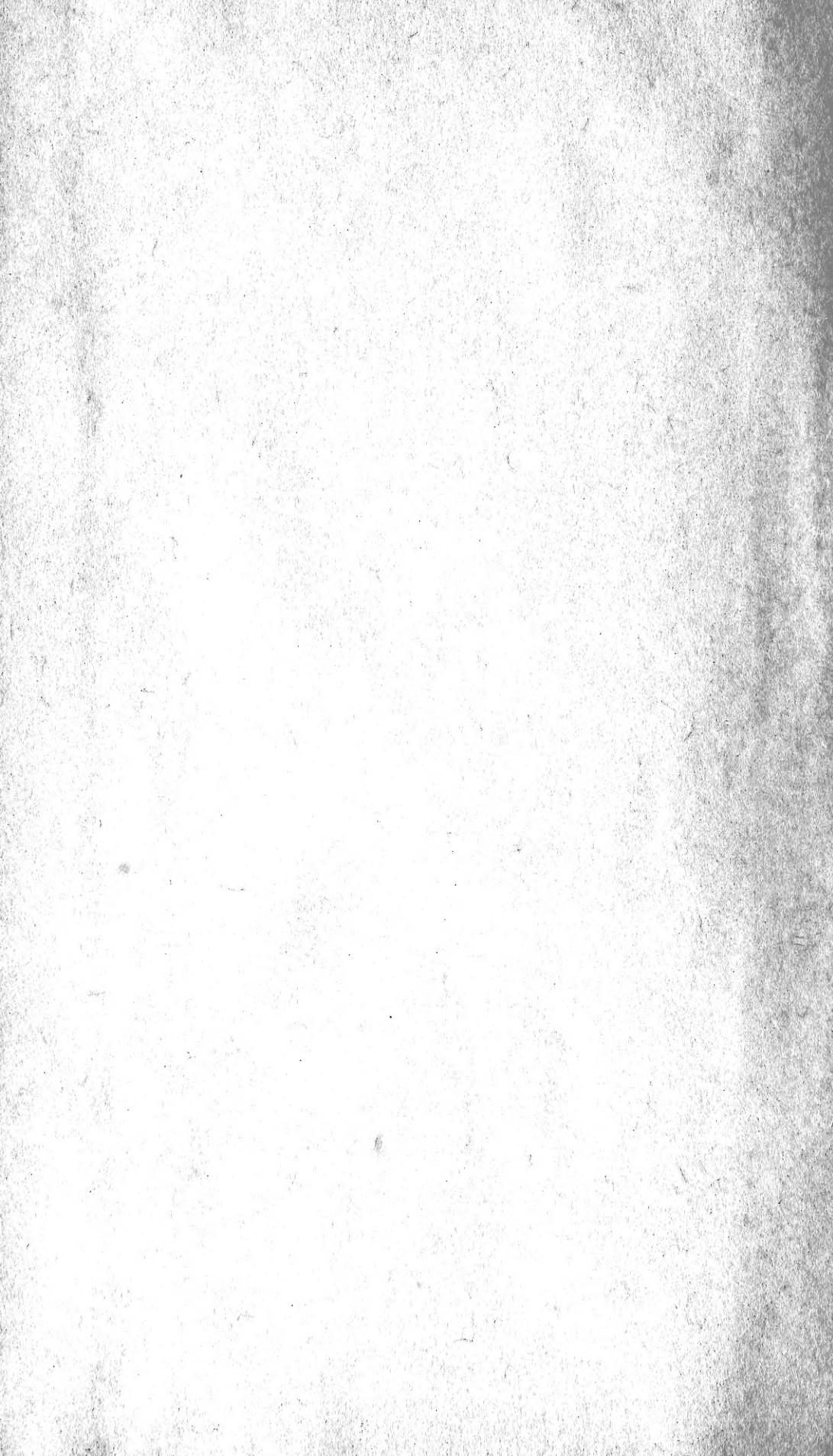
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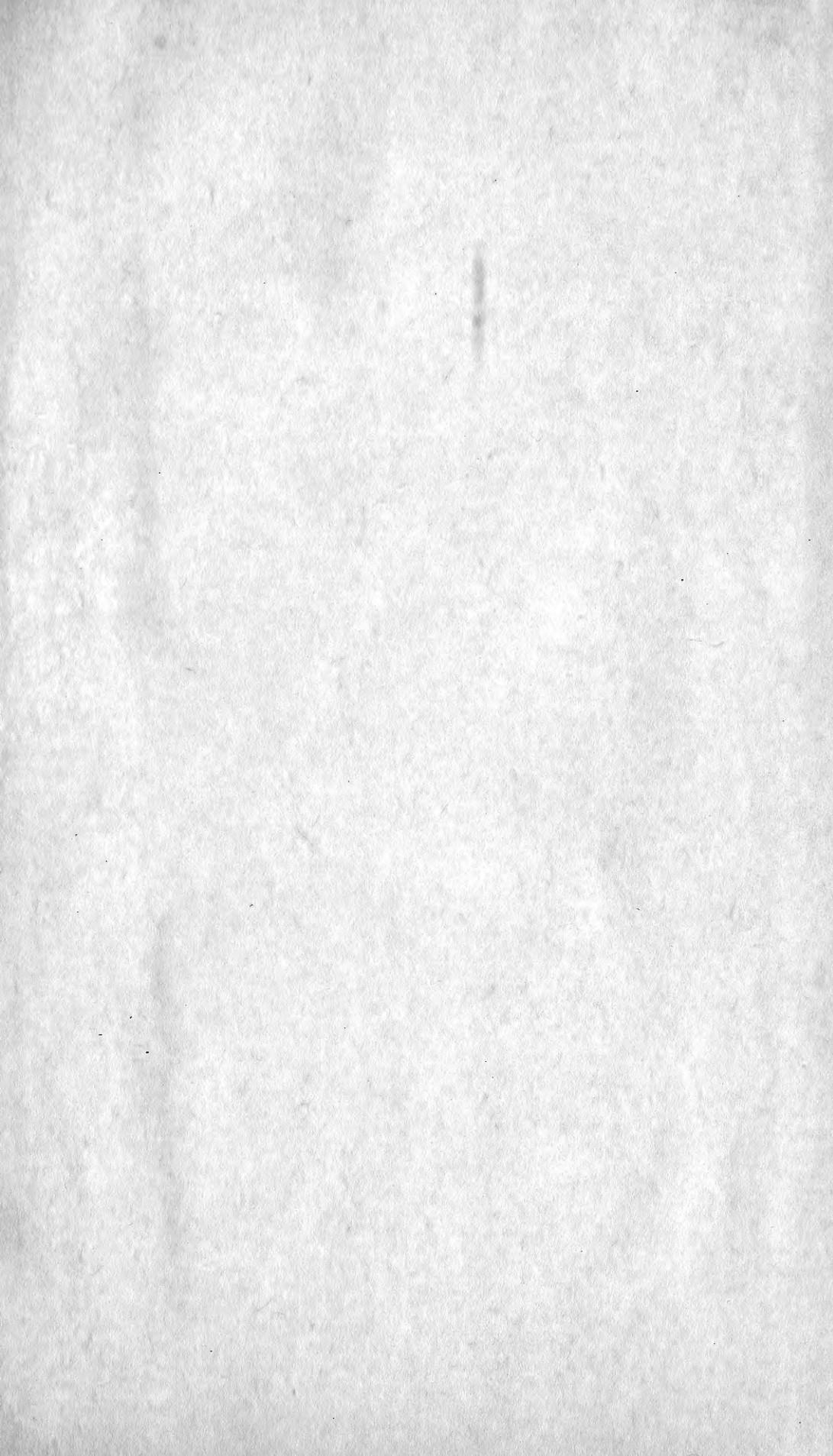
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SPECIAL INDEX.

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The Entomologist's Record and Journal of Variation

The names in this Index are placed alphabetically under specific names.

* indicates a new name.

** indicates an addition to the British List under an old name.

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No. 1.

THE VARIATION OF PHILUDORIA POTATORIA, L.

By B. J. LEMPKE.

I. INTRODUCTION.

In 1902 (*British Lepidoptera*, 3: 160-165) Tutt treated in a thorough way the variation of *Philudoria potatoria*, L. Since then almost half a century has passed, other authors have described more forms, our material has increased, and our consideration of the study of variation has considerably altered. So it is perhaps not superfluous to give a new survey of the variation of this extremely interesting moth.

It is a great pity that it is not yet possible to arrive at definite conclusions about the genetics of *potatoria*. This is mainly due to the fact that the caterpillars are not easy to winter. But my breedings of Dutch caterpillars have taught me at any rate that it is absolutely certain that many characters of the imagines depend on hereditary factors: the amount of brown and yellow in the ♂, the strength of the markings in the ♀ and the pale ♂♂, the ground colour of the ♀, and very probably also to a great extent the tint of the yellow and brown of the ♂, which is very variable. I conclude this from the fact that Holland is inhabited by two different subspecies; which are very easily recognized by the caterpillars. Now it is interesting to observe that in the breeding cage the differences between the caterpillars as a rule completely disappear, but the differences between the moths are not in the least influenced, they are stable. I shall more amply refer to it in treating the geographical variation.

Neither with the degree of the markings, nor with the different stages of the amount of yellow and brown in the ♂ and of the tint of yellow or orange in the ♀ are there sharp limits. Practically all forms are connected by intermediates. In the ♂ the extremes (unicolorous yellow or unicolorous red-brown) are, taken as a whole, the rarest, though locally (or subspecifically) strong deviations from this rule may occur. But as a rule the ♂♂, in which the forewings have a mixture of red-brown and yellow, are the commonest. This points to the probability that either the brown or the yellow depends on a number of allelomorphs.

In the ♀ the influence of the hereditary factors must be quite different from that in the ♂, as the ground colours are practically never the same, and as ♀♀ with brown (and then as a rule quite different from the red-brown of the other sex) are infinitely rarer than the ♂♂. This makes the experimental research of the problem not an easy task.

Tutt gives a table of the different colour forms which were known to him (l.c.: 162-163). There are, however, two objections to this nice-looking scheme. The first is that the ♂ type was not correctly fixed,

and the second, that the ♂ and ♀ forms are practically never identical, whereas the table suggests that they always are.

II. WHICH ♂ FORM OF *POTATORIA* IS THE TYPICAL ONE?

Most authors are satisfied to consider the commonest form of the ♂ the typical one, and it is at any rate a merit of Tutt that he tried to fix it in the correct way. It is, however, a pity that he did not consult the collection of Linnaeus at Burlington House, then he would have seen that the conclusion he arrived at was not correct.

Linnaeus in his original description (1758, *Syst. Nat.*, ed. X: 498) simply wrote: " alis reversis flavis," and Tutt deducted from these words that not only the ♀, but also the ♂, had wings with yellow ground colour. But the yellow ♂ was in Linnaeus's time still unknown! And his collection proves that he had not even recognized the ♂ of *potatoria* as such, notwithstanding the fact that the Swedish author cited several publications in which a ♂ was figured or described. The specimen of *Ph. potatoria* in his collection with a label in his handwriting is a ♀ (quite in accordance with the description). But the ♂ specimen of *potatoria* in the Linnaean collection is the type of *Phalaena Bombyx Pruni* (*Syst. Nat.*, l.c.: 498).

[This explains the remarkable colour-description of this beautiful orange-red moth by Linnaeus: " alis reversis luteis." Happily, however, he also cites the figures of Roesel (" Roes. ins., 1, phal., 2, t. 36 "), and here the normal orange-red *Odonestis pruni* ♂ (fig. 4) and ♀ (fig. 5) are represented. It will, therefore, be desirable to propose to the International Commission on Zoological Nomenclature to discard the type specimen and the incorrect original description of Linné and to consider the figures of Roesel as the types of *Phalaena Bombyx Pruni*, L., 1758.]

So it is evident that Linné did not know the *potatoria* ♂ at all and that we may apply his original description only to the ♀. The ♂ must be deducted from his citations in the *Systema Naturae*. None of them refers to the commonest ♂ form (f. *diminuta*, Tutt), but taking the left row before the right one, the first ♂ description is that of Rajus (1710, *Historia Insectorum*: 142). The parts which are most important are (translated from Latin) the following: " Head and lappets are fulvous-yellowish, and therefrom an area which is fulvous-yellowish, largely extends across the middle of the forewings on both sides [=on right and left wing] to the apex, obliquely dividing the wing . . . The hindwings are at the back reddish, in front more fulvous-yellowish."

This description clearly refers to a ♂ with forewings strongly tinted with yellowish and may without any hesitation be applied to the form which was distinguished by Tutt as f. *intermedia*. This is a very happy solution, as that form is widespread, at least in Western Europe. I, therefore, fix it as the typical ♂ form.

III. THE INDIVIDUAL VARIATION OF *PHILUDORIA POTATORIA*, L.

The drinker moth is a very attractive species because of its great variability, which is still much more extensive than the following survey shows. Especially in the males, in which the forewings are a mix-

ture of brown and yellow, both colours occur in many tints which cannot all be distinguished by different names, but which often characterise the outward appearance of a colony. I take the succession from light to dark and shall cite figures if possible, though I must admit that there are few really good ones.

In all plain forms the markings vary from absent or obsolete to strong, but although these degrees are almost certainly dependant on hereditary factors, I shall not distinguish them by special names, except in the cases where Tutt did so¹.

1. f. *decolor*, Thierry Mieg, 1910, *Ann. Soc. Ent. Belge*, **54**: 386. Name given to the ♂ figured by Millière, 1868, *Iconographie*, **2**, pl. 94, fig. 8, from Austria.

The ground colour of this ♂ is whitish, the costal part of the forewings up to the second transverse line is pale yellow, the transverse lines are distinct. The costal part of the hindwings is also faintly yellow.

This albinotic form, which is quite different from the usual pale ones, is very rare, but occurs in both sexes. I know two Dutch females.

2. f. *pallida*, Spuler, 1903, Schmett. Eur., **1**: 121. "The pale aberrations with more or less distinctly grey markings."

To understand this definition we must bear in mind that Spuler mentions the form after *berolinensis*, so it must be still paler than this. In the Dutch race which produces the latter form there occur also ♂♂ in which the forewings are pale greyish-yellow without the orange-yellow streaks of *berolinensis*. Their markings are distinctly greyish, so that they excellently answer to Spuler's description. They are far less numerous than true *berolinensis*.

Among the ♀♀ there also exists a form of a very pale greyish-yellow ground colour. Apart from the extremely rare *decolor* it is the palest ♀ form. It occurs in Holland only in the subsp. that produces the ♂ *berolinensis*, and is about as rare as the *pallida*-♂. In the specimens I know the markings are thin, but distinctly brown. Though it is impossible to prove at present that this ♀ genetically corresponds with the *pallida*-♂, it phaenotypically agrees at any rate excellently with it, so that I treat both under the same name.

3. f. ♀ *grisescens*, Mezger, 1933, *Lambillionea*, **33**: 11. "The colour of *berolinensis* is not stable. I have two ♀♀ before me caught in Friesland; the first is a little greyer, the second shows moreover a very feeble grey-brownish tint."

In 1933, when I discussed Mezger's new forms (*Ent. Ber.*, **8**: 481) I considered *grisescens* a synonym of *pallida*. It almost goes without say that Mezger did not agree with me (1933, *Lambill.*, **33**: 170). At present his collection (especially very rich in European Rhopalocera) is in the Leyden Museum, so that I could consult his material and I fully admit that he was right, though not for the reasons stated by himself. There are two ♀♀ of *grisescens*. Both belong without any doubt to the very pale ♀ form which I consider the equivalent of ♂ *pallida*. But in both (not in one, as Mezger stated) the ground colour of the wings is covered with a brownish tint, in one ♀ rather feeble, in the

¹Rebel (1909, Berge's Schmett.buch, 9th ed.: 126) cites "ab. *obsoleta* Tutt with obsolete transverse lines (combined with all colour forms)." This is not, however, in accordance with the publication of Tutt himself.

other very distinct. It will be convenient to restrict Mezger's name to this interesting ♀ colour form, which must be rare, as so far I have not seen any other Dutch specimens.

4. f. *berolinensis*, Heyne, 1899, *Soc. Ent.*, **14**: 3 (*inversa*, Caradja, 1895, *Iris*, **8**: 93, footnote, *pro parte*). The ground colour of the ♂ " is pale yellow . . . Full yellow dashes appear outwards from the pale, yellowish-white, central lunule, and at the base, to the inner margin. The hindwings and the underside agree in pattern with the type; only the ground colour, inclusive of the fringes, is pale yellow. The ground colour of the ♀ is pale yellow, the markings as dark as in the type, and therefore stand out much more prominently than in the type, the ground colour being much paler. The underside also is very much paler than in *potatoria*, often almost white-yellow."

Caradja described under *inversa* two totally different forms of ♂ and ♀. Through Heyne's action his name is automatically restricted to the dark ♀♀. Gillmer arrived already at the same conclusion (1910, *Arch. Freunde Naturgesch. Mecklenb.*, **64**: 54).

As regards the ♂, Heyne's description excellently characterises the commonest yellow form. The " full yellow dashes " are not seldom so deeply tinted that their colour may safely be termed as orange-yellow. The form is figured by Barrett (1896, *Lep. Br. Isl.*, **3**, pl. 94, fig. 1b) after a specimen from Cambridgeshire. The figure in Seitz (pl. 26f, fig. 3), with unicolorous brown fore and hindwings, is totally wrong.

This ♂ form is mentioned as a rarity from many localities: Kasan (Kroulikovsky, 1908, *Iris*, **21**: 219), Estonia (Petersen, 1924, *Lep. Fauna Estland*, 2nd ed.: 144), Basel (Vorbrodt, 1911, *Schmett. Schweiz.*, **1**: 224), Rumburg and Pilsen in Czechoslovakia (Sterneck, 1929, *Prodromus Schmett. fauna Böhmens*: 91), Northern France (Crocker, 1921, *Proc. S. London ent. nat. Hist. Soc.*, 1920-21: 56). But the form is especially known from North Germany (not from Denmark, however!), Holland and England. In Holland it is so far only known from the Western part of the country. In some colonies it is unknown or rare, but North of Amsterdam the number of yellow ♂♂ may rise to 70% ! In England its chief haunts are the Fens, but outside these it also occurs. I saw splendid specimens in the collection of Dr H. B. Williams from caterpillars collected in the neighbourhood of London. For other localities I may refer to Tutt's publication.

The ♀ described by Heyne is pale yellow, without the grey tint of the *pallida*-♀ and without reaching the yellow tint of the ♀ type. An excellent figure of it is given by Hoffmeyer (1948, *De Danske Spindere*, pl. 11, fig. 9). In Holland this form is not rare and may be found in the whole country.

Though Heyne unites these two forms of ♂ and ♀ under the same name, it is hardly possible that genetically they belong together. For whereas in Holland the ♂ is practically restricted to the " pale caterpillar race," the ♀ is not. And neither are they phaenotypically alike. Females with the " two full yellow dashes " are not known. In my opinion, the best solution would be to restrict Heyne's name to the ♂ and to give a new name to the pale yellow ♀. But I prefer leaving matters as they are, till something more of the genetics is known.

5. f. *obsoleta-berolinensis*, Tutt, 1902, *Br. Lep.*, **3**: 162 (♀ *obsoleta-atrinervia*, Mezger, 1933, *Lambill.*, **33**: 10). Name given by Tutt to the ♂ and ♀ *berolinensis* "with obsolete transverse lines." Mezger's remarkable name results from his wrong conception of f. *atrinervia*. The type, a ♂ from Amsterdam, is an ordinary *berolinensis* with feeble transverse lines.

The form is not common.

6. f. ♂ *feminalis*, Grünberg, 1911, *Seitz*, **2**: 164, pl. 26f, fig. 4. "A very pale yellow coloured form of the ♂ with very unsharp markings and nearly obsolete discal spot on the forewing; the band of the hindwing is strikingly broad and diffuse."

The figure is not beautiful. It shows a ♂ with yellow wings of a rather deep tint, the forewings with grey transverse lines and greyish area between dentated line and fringe, hindwings with a very broad and unsharp darker band. Among the ♂♂ of *berolinensis* there are some which show all these particularities and for which Grünberg's name may be used. The form is rare, at least in Holland.

7. f. ♀ *potatoria*, Linnaeus, 1758, *Syst. Nat.*, ed. X: 498. "*P. Bombyx elinguis*, alis reversis flavis; striga fulva repanda punctis duobus albis."

I have already pointed out that Linné's original description only referred to the ♀. According to his description it is the form with yellowish ground colour, darker than the pale *berolinensis* ♀ and without the orange tint of the *lutescens* ♀. The type specimen of Linné has distinctly marked forewings.

Figures of this form are: Barrett, *l.c.*, fig. 1a (too yellow); South, pl. 61 (both females); Hoffmeyer, *l.c.*, fig. 10; Seitz, pl. 26f, fig. 2. The ♀, figured in Nordström and Wahlgren's *Svenska Fjärilar* (1936, pl. 13, fig. 4) is not typical, as it is already more or less tinted with brownish.

The form is common.

8. f. *obsoleta-potatoria*, Tutt, 1902, *Br. Lep.*, **3**: 162. "Yellow with obsolete transverse lines."

Though destined for ♂ and ♀, the name can only be used for the latter sex, as Tutt's conception of ♂ *potatoria* was wrong.

The form is not common.

9. f. *lutescens*, Tutt, 1902, *Br. Lep.*, **3**: 162 (♀ *aurantiaca*, Mezger, 1933, *Lambill.*, **33**: 12). "Deep yellow or orange-yellow, with normal transverse lines."

Tutt gave the name to ♂ and ♀. In some *berolinensis* ♂♂ the two orange-yellow dashes are so large that they unite and occupy practically the whole forewing. In these specimens the hindwings are also of a somewhat deeper yellow. As far as I know, these are the only ♂♂ which could be indicated as *lutescens*. A specimen which nearly belongs to it (as regards the ground colour) is figured by Oudemans (1907, *Tijdschr. voor Ent.*, **57**, pl. 2, fig. 15). This ♂ form is no doubt scarce.

The ♀ with its orange-yellow ground colour is a beautiful form, which is at least as common as the typical ♀ in Holland and practically everywhere to be met with. This indicates that it has again genetically nothing to do with the ♂ *lutescens*, which is absolutely restricted to *berolinensis* producing populations.

Mezger described his *aurantiaca* after two ♀♀ from Friesland, which "have the fore and hindwings completely of an orange colour." These ♀♀ fully agree with *lutescens*.

The form is figured by Oudemans (1907, *l.c.*, fig. 20), though the beautiful orange-yellow ground colour has not exactly been reproduced.

10. f. *obsoleta-lutescens*, Tutt, 1902, *Brit. Lep.*, 3: 163. "Deep yellow or orange-yellow, with obsolete transverse lines."

Especially in the ♂ the form is rare, though ♀♀ with obsolete markings are also in most colonies far from common.

11. f. **rosea** nov. ♂ with rosy ground colour of fore and hindwings, the latter somewhat paler than the former.

A specimen of this attractive colour form emerged from a caterpillar collected in the South of Friesland. Possibly an allelomorph to *berolinensis*, from which it only differs in the ground colour.

12. f. *nigrescens*, Lempke, 1937, *Tijdschr. voor Ent.*, 80: 296. "Costa of the forewings up to the central spot broadly powdered with black; the 2 lines starting from the apex are black; outer half of the hindwings powdered with black."

As far as I know this form occurs in Holland only among the ♂♂ of *pallida*, *berolinensis* and *lutescens*. It is connected by intermediates to *feminalis*, and was figured by Oudemans, *l.c.*, fig. 15.

I know only one *lutescens* ♀ in which the lines are very thin, but distinctly black. The black basal suffusion fails, however, so that it is not at all certain that it belongs here.

13. f. *atrinervia*, Grünberg, 1911, *Seitz*, 2: 164, pl. 26g, fig. 1 (♂), 2 (♀). "A form from Holland (Amsterdam), which is in both sexes of a dull ochre-yellow, also with faint markings (especially in the ♀), in which the nervures are strikingly tinted with black, especially on the forewings."

The figures show an orange-yellow ♂ and ♀ with dark grey nervures. They are, however, far from beautiful, so that we must completely rely on the description.

I have seen hundreds of Dutch *potatoria* from all parts of the country, but never yet a specimen answering to the description of Grünberg, so that the form must be very rare.

[Mezger (1933, *Lambill.*, 33: 8) made a race = subspecies of *atrinervia*, which is altogether wrong. He obtained his material from an Amsterdam collector, who distributed all specimens of a colony (extinct now) which must have produced the original *atrinervia*, under this name. Mezger accepted this "determination" without any reluctance.]

In literature I could discover only one certain indication of *atrinervia*. Lumma (1938, *Ent. Zeitschr. Frankfurt*, 52: 91) describes a ♀ from East Prussia in which the nervures of all wings are "strikingly blackened." He also figured it (*l.c.*, 92, fig. 3), but *potatoria* is an extremely difficult species to photograph in black and white, so that the reproduction does not show the character of the dark nervures.

14. f. *proxima*, Tutt, 1902, *Brit. Lep.*, 3: 162. "Orange-yellow, with reddish or buff shading at base of costa [p. 163: "suffused with reddish-buff or -brown at base of costa"], forming a roughly triangular blotch, the oblique line and subterminal line of same shade; the hindwing buff with rather darker transverse line."

Tutt further wrote that in 1892 of 60 specimens taken at Wicken (so very probably all ♂♂) 5 belonged to *proxima*. Outside the British Isles the form must be very rare. I only know a few Dutch specimens. Some Amsterdam ♂♂ are especially very fine. They have red-brown hindwings and a similar shading at the basal part of the costa of the forewings, sharply contrasting with the orange-yellow ground colour of these wings.

Tutt mentions the form for ♂ and ♀, but I have never seen a specimen of the latter sex agreeing with the description. I strongly doubt if it really exists.

15. f. ♂ *potatoria*, Linnaeus, 1758, *Syst. Nat.*, ed. X: 498 (♂ *intermedia*, Tutt, 1902, *Brit. Lep.*, 3: 162). I pointed out already that the typical ♂ form is that which Tutt afterwards named *intermedia*. Especially his description on p. 163 is clear: "The yellow ground colour, suffused with reddish-buff or -brown in the costal and hind marginal areas, with normal transverse lines, and reddish-buff hindwings with darker transverse shade."

The form is figured by Barrett (*l.c.*, fig. 1d), but a much older figure is that of Wilkes (±1747, *Engl. Moths and Butterfl.*, pl. LVIII). In the English Fen district it must be pretty common, as 27 out of 60 ♂♂ belonged to it (Tutt, *l.c.*: 162). In Holland it is distributed over the whole country, but the hindwings are as a rule darker than in the description of Tutt. They agree with Barrett's figure, or are even unicolorous red-brown. A rather pale ♂ of this form is figured by Hoffmeyer (1948, *De Danske Spindere*, pl. 11, fig. 6) from Jutland. It is certainly generally distributed over the whole of N.W. Europe.

16. f. ♀ *intermedia*, Tutt, 1902, *Brit. Lep.*, 3: 162. I cited the description already with the preceding form. Though it clearly refers to a ♂ form ("red-brown"!), Tutt cited it for ♂ and ♀. Now there exists a ♀ form, which is darkened with brown (but of quite a different tint from that of the ♂!) along costa and hind margin of forewings. It is very rare, at least in Holland. Tutt's name may conveniently be restricted to this form.

17. f. ♀ ***transitoria***, nov. Ground colour of the wings orange-yellow. This colour more or less completely covered with a thin, but distinct, brown suffusion, so that a brownish-yellow colour results, intermediate between *lutescens* and *inversa*.

I know several Dutch ♀♀ of this colour form.

18. f. *diminuta*, Tutt, 1902, *Brit. Lep.*, 3: 162. The clearer description of p. 163 reads: "Reddish-brown or reddish-chocolate, with yellow basal intermarginal patch, a yellow discoidal streak, normal transverse markings; hindwings reddish-brown."

Taken as a whole, this is without any doubt the commonest form of the ♂, and in many text books figured as its typical form. I cite the following figures: Barrett, fig. 1; South, pl. 61, lower ♂; Hoffmeyer, fig. 7; Seitz, pl. 26f, fig. 1; Svenska Fjärilar, pl. 13, fig. 4. A clear proof how generally distributed this form is in Europe! There is, of course, no sharp distinction between *potatoria* (= *intermedia*), *diminuta* and *extrema*, but as a rule it is not difficult to classify the specimens.

Though Tutt cites this form for ♂ and ♀, it is again clear that his description refers to the ♂ ("reddish-brown or reddish-chocolate"!). Yet there also exists a ♀ form with the same colour division

of brownish (but of a quite different tint, much paler!) and yellow, but in contradiction to the ♂ form it is rare (at least in Holland). A very good figure of it is given by Hoffmeyer (1948, *l.c.*, fig. 11). It may of course be indicated by the same name.

19. f. ♀ *obscura*, Closs, 1920, *Int. Ent. Z. Guben*, **14**: 122. "Brown-grey with pale yellow basal spot on the forewings, dark grey hindwings, all markings very sharp."

Described after a ♀ from Hagen in Holstein. In dark females the yellow basal spot on the forewings seems the last pale part of the ground colour to disappear. See Barrett, fig. 1e! Though the ground colour, especially of the forewings, does not completely agree with Closs's description, I think we may safely consider it as belonging to the same form. No doubt rare.

20. f. ♀ **bicolor**, nov. Ground colour yellowish, restricted to the centre of the forewings (between the basal and discal lines) and the base of the hindwings (up to the discal line). Base of the forewings and outer part of fore and hindwings dark brown, sharply contrasting.

A photo of this handsome, but no doubt very rare form, is published by Bilek (1941, *Ent. Zeitschr.*, **54**: 216). One specimen from about 200 caterpillars from the neighbourhood of Munich. Very probably a recessive form.

21. f. ♀ *inversa*, Caradja, 1895, *Iris*, **8**: 93, footnote (*brunnea*, Thierry-Mieg, 1910, *Le Naturaliste*, **32**: 46; ♀ *burdigalensis*, Manon, 1922, *Proc. Verb. Soc. Linn. Bordeaux*, **74**: 162). "In Northern Europe already in North Germany and Denmark, this species varies, as is well known, in such a striking way that the ♂♂ are often pale yellow, the ♀♀ on the contrary dark brown. The most extreme specimens of this form, in which the ♂♂ have the colour of the ♀, the ♀♀ the colour of the ♂, might well be arranged as ab. *inversa*, Caradja."

I pointed out already that Caradja's name must be restricted to the ♀. I never saw a specimen in which the ground colour reaches the dark red-brown tint of the ♂. If this form really exists, it must be extremely rare. The ordinary form of *inversa* has wings of a quite different tint, and is as a rule scarce. Oudemans (1907, *l.c.*, fig. 21) figured one, though the tint is not quite correct.

A good description of the form was given by Thierry-Mieg (1910, *l.c.*): "This variety differs from the typical ♀ by its darker colour, of a pale nut-brown, sometimes mixed with yellow, especially on the forewings." Described after 5 ♀♀ from Westphalia, also obtained from the neighbourhood of Paris.

Manon described the *burdigalensis* ♀ as having the ground colour "terre de sienne" instead of yellow. See also no. 24. Such a ♀ is also figured by Lumma (1938, *Ent. Z. Frankfurt*, **52**: 90) from East Prussia, but the figure is a failure owing to the great difficulty of photographing the soft tints of *potatoria*.

22. f. ♂ *extrema*, Tutt, 1902, *Brit. Lep.*, **3**: 162. "The forewings almost uniform red-brown or chocolate-brown, with a purplish gloss, the oblique line still darker; the subterminal line almost lost in ground colour, the lower discoidal distinct, with the base of the inner margin scarcely paler than the ground colour; the hindwings unicolorous, purplish red-brown."

Tutt gave the name to ♂ and ♀, but the description clearly refers to the ♂, and Caradja's older name automatically restricts *extrema* to this sex.

There are several very distinct shadings in this form. The commonest is uniform red-brown, and is figured by Barrett (fig. 1c) and Oudemans (1907, *l.c.*, fig. 18). But there also exists a form of a very much darker ground colour, with the peculiar purplish gloss mentioned by Tutt. Hoffmeyer's figure (1948, *l.c.*, fig. 8) resembles it. I prefer leaving all these unicolorous forms together, at least till more details of them are known.

23. f. ♂ *obsoleta-extrema*, Tutt, 1902, *Brit. Lep.*, **3**: 163. "As in ab. *extrema*, but with transverse lines obsolete."

I cannot remember having ever seen a ♂ answering to this description. It is possible that Tutt had seen a dark ♀ form with obsolete lines, but then it will be better to drop the name.

The next three forms only refer to the markings of the forewings, and are independent of the ground colour.

24. f. *unimacula*, Foltin, 1942, *Zeitschr. Wiener Ent. Ver.*, **27**: 36. "The second small spot above the discal spot of the forewings fails."

Described after 1 ♂ from Traunstein in Austria. I have several ♂♂ of this form which occurs in all colour forms. With the ♀♀ it is much rarer.

25. f. *burdigalensis*, Manon, 1922, *Proc. Verb. Soc. Linn. Bordeaux*, **74**: 162. At a meeting of the Société Linnéenne of Bordeaux, Manon showed a couple of *potatoria* from Carignan, near Bordeaux. From these and a few other specimens in the collection of the abbé Sorin (together 4 specs.!) he thought to be entitled to describe a special subspecies from the neighbourhood of Bordeaux. For the ♀ see *inversa* (No. 20). With the ♂ "the motor car light ("phare d'auto") of the forewings has disappeared."

This can only mean that the lower (larger) discal spot on the forewings fails. To be certain I also asked the opinion of a French lepidopterist, Monsieur Caruel, of Reims, who fully shared my opinion.

Manon's opinion was that the Bordeaux race was characterised by dark ♂♂ and ♀♀, but it is impossible to characterise a subspecies of such a variable species from such scanty material. Moreover, it is hardly possible that all Bordeaux ♂♂ lack the large discal spot.

The best solution will be to use the name for all specimens without the lower spot, however inadequate the name may be. I have never seen one.

26. f. *crucistrigata*, Lumma, 1938, *Ent. Zeitschr. Frankfurt*, **52**: 90, fig. 1 (p. 92). "The most remarkable thing is the situation of the dark lines on the forewings. Whereas they normally have a large space between them at the inner margin, they run with this ♂ in such a way that they cross each other above the inner margin."

Described after a ♂ from Gross Raum in East Prussia. The basal line (the lower half of which often fails) and the second line meet each other below the discal spot and then separate again, the well-known *tungens*-type of many Geometridae. In *potatoria* it must be extremely rare.

IV. GEOGRAPHICAL VARIATION OF *PHILUDORIA POTATORIA*, L.

In his description of 1758 Linnaeus did not state the "Patria" of the species, so that his citations must decide. The first is Goedaert's *Metamorphosis naturalis*, started about 1660. The author was a painter at Middelburg (prov. of Sealand, Holland); the material treated in his book was, however, certainly not wholly of Sealand origin, but was also collected on his journeys which reached into France (see Snelleman, H. P., Johannes Goedaert, 1877, *Album der Natuur*: 210, footnote 3). As Goedaert did not state the locality of his *potatoria*, this first citation of Linné cannot be used for fixing the type locality.

His second citation is Lister's issue of Goedaert (1685), against which the same objections arise.

The third is Rajus' *Historia Insectorum* and the fourth Albin's *Natural History*. Especially of the latter author we can take it for granted that he described and figured after English material collected by himself. We are, therefore, safe in fixing the South-English subspecies of *potatoria* as the typical one. As far as is known at present this subspecies is found in almost the whole European and a great part of the Asiatic territory of the species. As a rule it has a dark caterpillar.

A distinctly characterised subspecies is found in the low western part of Holland. The most important features are: 1, The presence of an important percentage of yellow ♂♂, on an average 58%, which may rise in some colonies to 70%. 2, The practically complete absence of unicolorous brown ♂♂. 3, The complete absence of ♀♀, which are partially or completely coloured with brown. 4, The preponderance of ♀♀ which are without transverse lines (16%) or feebly marked (78%). 5, The pale greyish-blue ground colour of the caterpillars. 6, The subspecies is restricted to the reed beds along the borders of ditches, lakes or marshes.

I stated already that the pale ground colour of the caterpillar is very probably not due to hereditary factors, but to environmental ones. In the breeding cage the colour changes into the ordinary blackish-blue as soon as the larvae change their skin. As it is not a question of food (they get the same *Phragmites communis* as in the wild state) I presume that light has something to do with it.

I distinguish this subspecies as subsp. **occidentalis**, nov.

Tutt (1902, *Brit. Lep.*, 3: 162) published some figures of specimens caught at Wicken in 1892. Though these figures, of course, rather strongly deviate from those I found with the Dutch populations of subsp. *occidentalis*, because they only refer to a rather limited series of one locality, they at any rate give the impression that the English fen populations are related to those of Western Holland. Their biotope is quite the same, and further study will probably show that they belong to the same subspecies. But then the suggestion is obvious that the Dutch and English fen populations are both the remnants of the old Doggerland form, like *Hydraecia fucosa*, Fr., subsp. *paludis*, Tutt, which is also found on both sides of the North Sea. The long period that both groups of populations have developed quite independently may easily explain the differences in the percentages of the colour forms in England and

Holland. Moreover, the Dutch colonies themselves also show strong deviations from each other. For particulars I may refer to my publication on "The geographical variability of *Philudoria potatoria*, L., in Holland," with English summary (1949, *Bijdr. Dierk.*, **28**: 299-307).

The other subspecies are all of East Asiatic origin. As I have never seen material of them, I shall only briefly mention them:

1. subsp. *askoldensis*, Oberthür, 1880, *Et. d'Ent.*, **5**: 38. "Much larger, and both sexes of a much darker reddish-brown than the European type."

A ♂ is figured in Seitz, **2**, pl. 26, line f, no. 5. Grünberg (*l.c.*, 164) writes that the form seems to be restricted to the Ussuri territory, where, however, also smaller specimens occur resembling the typical subspecies.

2. subsp. *bergmani*, Bryk, 1941, *Ent. Tidskr.*, **62**: 148. A little smaller than the typical subsp., paler, the brown and yellow parts not so strongly contrasting. Outer part of the hindwings only rarely darkened, underside much paler.

Described after 17 ♂♂ from the island of Kunashiri (Kuriles).

3. subsp. *midas*, Bryk, 1941, *l.c.*: 149. A little larger than the preceding subsp., wings pale yellow, markings blackish.

Described after 7 ♂♂ from the island of Urup (Kuriles).

4. subsp. *mikado*, Bryk, 1941, *l.c.*: 148. Outer border more rounded. Ground colour more purplish (compared with *bergmani*).

Described after 2 ♂♂ from Japan, without more accurate indication of locality.

Amsterdam—Z.2, Oude Yselstraat 12III.

COLLECTING AT THE CANOPY OR ROOF-TOP OF THE FOREST.

By CHAS. B. ANTRAM.

May I suggest that some enthusiastic Entomologists carry out experiments of moth collecting with light-traps at the canopy or roof-top of extensive forests in this country.

Experiments of this nature have been carried out in tropical countries, such as the Amazons in Brazil, with surprising results in that many species of insects have been taken only at the canopy and not occurring at the same time on the floor-level, i.e., while specimens of the same species may be taken at the two levels in varying proportion as to numbers, it will be found that certain species only inhabit the roof-top which are not found on the ground-floor and vice-versa.

I may be wrong but I have never heard of this being done in this country, and it would be interesting and of great value to see how it works out by taking particulars of the species and numbers of each at the two levels. It would appear that the ground-light should not be just under the canopy light for correctly ascertaining the various species occurring at the two levels in order to avoid detraction one from the other. It would be necessary, however, to have the two traps in the

same vicinity so as to take and note the species of that particular area. The average height of a tropical roof is about 100 feet but is much less in this country and not much is known of the life at the canopy. Naturalists have moved about mostly on the forest-floor in their collecting to the neglect of the canopy.

The only way of adding to our knowledge of life at the canopy is to establish some kind of observation post at that level, connected with the ground by some form of ladder or scaffolding. Owing to the greater height of the trees of a tropical forest this experiment has been made also at the half-way level but which would seem not necessary here. This platform should be of wide dimension and very rigidly made to take the light-trap and for the collector to stand on if he is desirous of capturing the insects with the net as they come to the light and by which method many more are secured than will enter the trap. I believe that in certain parts of the country observation posts were erected above the forest roof during the war and the Forest Department use such contraptions for the spotting of fires, etc. Permission to make your own or to use any that may be in existence would be necessary.

Mothing with a powerful light and a sheet at the ground level is easily planned but a very different matter on a platform at the canopy. Wind and rain which may spring up during the night will play "old harry" with the sheet, so for general permanent use a box-light-trap, with a metal reflector, might be fixed in position, without a platform and unattended, to be examined next morning.

Not many insects will be taken in this way compared with when there is someone standing by with a net and many of the insects entering the net will be found damaged, owing to their continuous fluttering, and of no use as cabinet specimens but still identifiable for the purpose of this experiment.

"Clay Copse," Sway, near Lymington, Hants,
January 1950.

I have just seen the "last word" in electric moth-traps. The smallest size made at present is circular in shape, about two feet in diameter by one foot deep. It is made of zinc with a sloping surround of talcum from the outer rim rising towards the centre on the top, which has a zinc funnel down which the moths are trapped, surmounted with a 400 c.p. clear electric bulb in the centre. It is flat bottomed so can be placed on a table in the garden fixed to a power plug in the house. When electric power is not available the apparatus can be used anywhere by substituting a pressure lamp which can be left unattended all night if so desired. In order to asphyxiate the moths and prevent fluttering and consequent damage it is only necessary to saturate a wad of cotton wool with tetrachlorethane or the like.

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Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

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All Communications should be addressed to the Acting Editor, HY. J. TURNER, "Latemar" 25 West Drive, Cheam.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7.: February 1st, March 1st, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: January 25th (Annual Meeting), February 8th. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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A SHORT COLLECTING TRIP IN THE PYRENEES, JUNE 1949.

By C. G. M. DE WORMS, M.A., Ph.D., F.R.E.S.

Collecting in the Central Pyrenees, chiefly round Gavarnie, so popular at the end of the last century and the beginning of the present one, has been somewhat neglected in the entomological literature of recent years. In fact, very little has appeared about this region since the late Brigadier-General B. H. Cooke wrote a very comprehensive account of a summer spent in these favoured haunts during 1924 (vide *Entom.*, 58, 1925, pp. 87, 119, 201), and the late Mr Fassnidge contributed "A Month's Collecting in the Pyrenees" (vide *Ent. Record* (1926), 38, 49, seq.). Attracted by his very entertaining story of his many captures of good species I had ideas of following to some extent in his footsteps though only for a very much shorter period. As I was already going to spend a week in Bordeaux with a scientific party, I decided to proceed south immediately afterwards. While in Bordeaux I got in touch with Mr Guy Adkin, who very kindly invited me to spend a week-end with him at St Jean de Luz, which I reached on 18th June in glorious weather. Mr Adkin, who has had a lot of experience of collecting in the Pyrenees, was able to give me plenty of valuable help and hints, for which I was very indebted to him. On his advice, I set out for Cauterets on June 20, reaching that noted locality late that afternoon. One soon gets an idea of the grandeur of the Pyrenees as the motor coach winds its way along the precipitous road up the valley from Pierrefitte (1000 ft.) to Cauterets (3000 ft.), which is surrounded by high peaks rising to 7000 ft. My first sample of the local Lepidoptera was round the big lamps surrounding the Casino. The first insects I saw were that fine Noctuid *Euxoa decora* and *Trisateles emortualis*, as well as *Dasychira pudibunda*, *Pachys betularia*, *Cosymbia trilinearia*, *Gnophos glauzinata*, and a very bright race of *Thera variata*. The 21st turned out a superb day. In the morning I had a delightful walk along the banks of the torrent towards La Railliere and took a fine assortment of butterflies. The first I met with was *Erebia stygne*, quite the commonest member of this family, in very fresh condition. At this altitude *Anthocharis cardamines* was still on the wing, as well as *Carterocephalus palaemon*. *Papilio machaon* was disporting itself on a flower-covered slope together with *Aporia crataegi*. *Leptosia sinapis* was abundant and I also took a number of *Lycaena bellargus*, *Polyommatus icarus*, *Cupido minimus* and a few *Pararge moera*, *Coenonympha arcania*, *Carcharodus floccifera* (*altheae*) and *Spialia sartorius* (*sao*). In the afternoon I went over by motor coach to Gavarnie, which I last visited in 1928. All the way up the valley from Gèdre *Parnassius apollo* was flying in the alpine meadows, but in spite of the fine conditions I was surprised at the general lack of insects. Around the village of Gavarnie I saw many *E. stygne*, a few *Cyaniris acis* and many *C. minimus*, but apart from *P. apollo*, of which I took several good examples, the lush meadows were very barren. Returning to Cauterets, I saw many familiar species of Geometers during an evening walk along the river. These included *Epirrhoë montanata*, *E. rivata*, *E. sociata*, *Lyncoëtra ocellata*, *Melanthis procellata*, and *Horisme tersata*. The next day, June 22, in equally good weather, I took the bus up the valley

from Cauterets by the very steep and winding road to the Pont d'Espagne (4500 ft.). From this lovely and wild spot a tortuous path leads through the fir woods bordered by wild rhododendrons to the famous Lac de Gaube (5500 ft.), whence there is a superb view of the Pic de Vignemale, one of the highest in the Pyrenees. Geometers were flying up among the bilberry in all directions, mainly *Epirrhoë tristata*, *Eulype hastata*, *Mesoleuca albicillata*, and *Ematurga atomaria*. At this level the chief fritillary was still *Argynnis euphrosyne*. Towards the 5000 ft. mark other species, especially the Erebias, came more into evidence. *Erebia stygne* was still the commonest of this family, and just as I approached the Lake I took the first *Erebia epiphron* and *E. oeeme*. Flying with them were a few *Melitaea dictyna* and an occasional *M. parthenie*. When I reached the Lake itself at the 5500 ft. level the woods opened out into a glorious vista of the steep mountain slopes with the full sun shining on them and a layer of cloud well below us in the valley. *Pyrameis cardui* in somewhat poor condition was steadily migrating over the range northwards. After a lakeside lunch I went for a walk along the rugged path bordering the right bank. Here I came across a damp patch swarming with *Cupido minimus* and from among them I disturbed a single specimen of *Polyommatus orbitulus* f. *oberthuri*, a Blue of an exquisite mélange of dark border and silvery centre to the wings. A little further I ran into a colony of Erebias, again mainly *E. stygne*, but I was fortunate enough in securing one *E. evias*, just out, and also an *E. cassioides* f. *murina*, the identity of which Mr B. C. Warren has kindly confirmed. Unfortunately at this period stormclouds gradually gathered and I was soon forced to make a hasty return to the Pont d'Espagne. On the way back I took two Geometers I had not seen before, which were kindly identified by Mr D. Fletcher as *Epirrhoë molluginata* and *Perizoma hydrata*.

Heavy rain supervened for the next two days, and no collecting was possible till the afternoon of the 24th, when I took a walk through the beechwoods to the foot of the Vallée de Cambasque, but little was on the wing and the only Geometer of interest I saw proved to be *Larentia cyanata* and I also found one *Zygaena purpuralis* at rest. There was nothing of note flying round the Casino lights that night. The weather cleared overnight and the next morning, my last in these fine surroundings, I spent on a walk up the eastern side of the valley up towards the Ferme of la Reine Hortense. The slopes were flanked with thick woods interspersed with clearings of lush meadows full of flowers, but the number of butterflies was not as many as might have been expected in the ideal conditions prevailing. I saw many more *Aporia crataegi* flitting over the thick grass, several *Papilio machaon*, *Aphantopus hyperanthus*, and I also took *Melitaea phoebe*, rather worn, and several more *M. parthenie*. The blues were mainly *Polyommatus icarus*, *Cyaniris acis* and *Cupido minimus*. I also found a worn specimen of *Hypena fontis* at rest on a rock. I left Cauterets that afternoon after a most delightful few days, and I much hope to revisit those happy hunting grounds again slightly later in July when the peak of the butterfly season in these parts is at hand.

THE BUTTERFLIES OF GREENWICH PARK.

By D. F. OWEN, M.B.O.U., and J. E. OWEN.

Greenwich Park is situated well within the County of London some six miles to the south-east of St Paul's and is approximately 185 acres in extent. The south side is bordered by Blackheath, an expanse of flat, open grassland which is cut periodically. To the north and west lie the industrial and residential areas of Greenwich, and to the east is a residential area with large and well-wooded gardens. Two and a half miles east is Shooter's Hill, a mixed deciduous wooded hill with rough, open slopes and fields. Formerly this greatly influenced the fauna of the Park, but, as the area between has been largely built on, the influence has decreased, and at the present day Greenwich Park and Blackheath are almost isolated.

The dominant trees are chestnuts, elms, oaks and limes, many of which are extremely old and pollarded; growing on typical, undulating parkland, here and there forming small copses. A large number of introduced trees and shrubs are grown as well as odd birches, pines and hawthorns. The ornamental gardens provide the greatest attraction for Lepidoptera, particularly the migrants. It is here that beds of dalias, primulas, delphiniums, fuchsias and many others are the delight of both Londoners and butterflies throughout the summer. In the south-east corner of the Park is the deer enclosure and the bird sanctuaries, where a considerable number of butterflies breed.

The last work published on the Lepidoptera of Greenwich Park is in A. D. Webster's *Greenwich Park, Its History and Associations* (1902). It is interesting to make a comparison with this and the present-day fauna, especially when one considers the changes which have taken place in the surrounding area during the past fifty years. Our own observations have been made since 1944, notably from 1944 to 1947, when we visited the Park daily.

Pararge megera, L.—This species is not really common in the Park, but certainly breeds, and is not merely a stray from Blackheath. Most numerous in the deer enclosure and fairly frequent on blossoms in the ornamental gardens. *Maniola jurtina*, L.—Generally common, but numbers kept down by the cutting of the grass in most of the breeding areas. During the war the grass on Blackheath was allowed to grow long and there was a considerable increase throughout the area and consequently more were to be seen in Greenwich Park. *Maniola tithonus*, L.—Recorded in Webster's 1902 list, but is now extinct. Date of actual extinction uncertain. *Coenonympha pamphilus*, Mull.—Distribution and relative abundance similar to that of *M. jurtina*, but a large number are blown in from Blackheath, where it abounds.

Vanessa atalanta, L.—The most abundant of the immigrant butterflies, except in 1945, when its place was taken by *V. cardui*. Abounds in the ornamental gardens during the autumn, where it is attracted by dahlia flowers. *Vanessa cardui*, L.—Common nearly every year, occurring in unprecedented numbers in the late summer of 1945. Larvae are often met with on nettles and thistles in the deer enclosure. *Aglais*

urticae, L.—Breeds freely on waste areas and in the deer enclosure. Always common in the ornamental gardens, but numbers certainly fluctuate annually. *Nymphalis polychloros*, L.—Listed by A. D. Webster, although not definitely recorded during the past five years. Has occurred at Lewisham, two miles south of the Park, and there are several other doubtful records. As the butterfly appears to be re-establishing itself in S.E. London, we may once again see it regularly in the Park. *Nymphalis io*, L.—At the present day it does not breed in the Park, but has done so in the past. Now known as a regular visitor in the spring and autumn—sometimes abundant in the ornamental gardens. *Polygona c-album*, L.—A common breeding species which has increased during the past few years, as it has done throughout S.E. London. In October 1945 we took a male with a circular mark instead of the typical "comma." Not listed in A. D. Webster's book.

Polyommatus icarus, Rott.—A sparsely distributed species, now decreasing. Breeds in small numbers on the common *Papilionaceae* on the north slopes and in the deer enclosure. *Celastrina argiolus*, L.—The most abundant of the Lycaenidae in Greenwich Park. Breeds in considerable numbers on the holly and ivy, both of which are common in the Park. *Lycaena phlaeas*, L.—Fluctuates in numbers according to weather conditions. By no means common, breeding principally on the north slopes of the Park. *Callophrys rubi*, L.—Listed by A. D. Webster, but now extinct except for occasional stragglers. One was seen by J. F. Burton.

Pieris brassicae, L., and *P. rapae*, L.—Common, breeding in large numbers on allotments and in gardens surrounding the Park. *Pieris napi*, L.—Less common than the two preceding species, but nevertheless quite abundant. *Anthocharis cardamines*, L.—Bred at Lewisham up to and including 1946 and was then a frequent visitor to the Park. Since then its visits have been very irregular, the nearest definite breeding locality being Shooter's Hill. *Colias croceus*, Fourcroy.—Occurs almost every year in small numbers. In 1947 it was abundant and var. *helice* was noted in the ornamental gardens. Strangely enough, it was not listed by A. D. Webster. *Gonepteryx rhamni*, L.—Seen annually after hibernation and exceptionally in the autumn. Formerly bred at Lewisham and was then frequently seen in the Park.

Thymelicus sylvestris, Poda.—Small numbers breed throughout the Park, but it appears to be decreasing. Not listed by A. D. Webster. *Thymelicus lineola*, Ochs.—A few breed, but its presence may be accounted for by the fact that it is common on Blackheath, and the butterflies tend to wander into the Park. Another species which appears to be decreasing and again it is not listed by Webster. *Ochloides venata*, Br. & Grey.—The most abundant of the *Hesperiidae* in Greenwich Park, breeding in considerable numbers on the grassy borders around the ornamental gardens. Not listed by Webster.

Thus it will be seen that the status of the butterflies in Greenwich Park is quite favourable at present, although a decrease in numbers of breeding species has become apparent during the past few years, this without doubt being due to the fact that the surrounding country is now almost entirely built up.

**AN ATTEMPT TO EXPLAIN THE DEVELOPMENT OF PIERIS
RAPAE AT PHILADELPHIA DURING THE YEAR 1932.**

By O. QUERCI.

(Continued from p. 126.)

(18) July 1. Drying land. However, the weeds are dense in many places of the meadow. There, the underlying soil does not become hot in spite of intense radiation and temp. 93°. Some larvae survive and grow (j). (July 7: A=58, B=1, C=58.) In the *Ent. Rec.*, 1935, p. 61, we related that all the larvae in our breeding-cages collapsed by flaccidity both in the open and in an ice-box ajar at about 60°. At home the caterpillars had no shelter, and were killed by the waves of radiant energy springing from the burning soil of the asphalted streets (i).

(19) July 2-3. Temp. drops; max. 80°, min. 64°, perhaps owing to a N.W. wind at 33 miles per hour. The larvae hatched after June 26th (when the climate became suitable), grow now with plenty of food and shelter (j). Only those in bare places collapse (i).

(20) July 4-6. Rains, temp. 78° (b).

(21) July 7-8. Wet ground, dense weeds, intense S.R., feeble R.R., full sunshine, temp. 85°. Pupae are formed. (July 8-15: A=458, B=8, C=55.)

(22) July 9-19. Ground dries gradually, but weeds offer shelter to larvae. Temp. 89° (i, j). (July 16-18: A=259, B=3, C=82; July 19-25: A=704, B=7, C=100. At home our larvae, without shelters, all died on the 13th.) On the 19th the meadow is almost barren.

(23) July 20. The excess of fertility is arrested. Barren ground, little rain in the morning, cloudy until afternoon. Later the sun shines with an exceptional violence for less than 3 hours, though the temp. reaches only up to 83°. (We are unable to explain why the S.R. as so strong at a moderately high temp.) High mort. of larvae (i). Many eggs are laid by the large number of adults on the wing.

(24) July 21-23. An hurricane on the 22nd. Wind 38 miles per hour (m). (The number of adults on the wing in the meadow drops suddenly after a week; July 26-31: A=181, B=6, C=30).

(25) July 24-26. Fine weather, but almost no weeds (see Table I). Those larvae that can not get food neither grow, nor die (e). (Aug. 1st: A=27, B=1, C=27; on the 2nd and 3rd the weather is bad; Aug. 4: A=24, B=1, C=24.)

(26) July 27-31. A shower in the afternoon of the 27th. The meadow becomes verdant and the larvae that had survived can get food; some of them form pupae (a). (Aug. 5-6: A=65, B=2, C=32.) Owing to intense heat, 90°, and wind 35 miles per hour, the humidity of the soil evaporates quickly. On the 29th the ground is dry, but the amount of weeds increases, offering shelter to most larvae (j). In the morning it is cloudy and a few larvae pupate (l). Later the sun shines with great intensity though the temp. is no more than 86°. Water upon the soil disappears. Electrified air, smell of drying ground (k). We see some caterpillars crawling on the paths in spite of the vivid light. Almost all the larvae in the meadow, having left their hiding places,

should have been killed by the R.R. (Aug. 7-10: A=59, B=4, C=15. Most of these *rapae* are old.)

(27) August 1-2. Dry soil, some weeds, moderate radiations, temp. 85°. Both the larvae hatched on July 30th and 31st, and those hatching now, must survive (l). In the afternoon of the 2nd it begins to rain (a).

(28) August 3. It rains both day and night, temp. 78°, moderate wind, high vapour pressure (707 at noon) (b). Water deeply absorbed by ground.

(29) August 4-9. Humid soil, plenty of weeds, intense S.R., feeble R.R., temp. 89°. Great activity of larvae; many pupae formed (a). (Aug. 11-17: A=977, B=6, C=163. In the *Ent. Rec.*, 1935, p. 87, we were unable to explain this large emergence because we believed that on Aug. 5th and 6th all the larvae ought to have died as the temp. was over 90°.)

(30) August 10. Heavy rains, high temp. (90°). Other pupae are formed (a), but the increasing fertility is controlled by some mort. due to storm (m).

(31) August 11-16. The storm of Aug. 10th killed many larvae, but there are in the meadow a large number of pupae which resist alluvion and gradually produce adults (a). (Aug. 28-23: A=926, B=6, C=154, and thousand others.)

(32) August 17-19. Another storm prevents a further increase (m). (Aug. 24-26: A=437, B=3, C=146).

(33) August 20-26. The ground of the meadow dries gradually, max. temp. 83° to 88°. The larvae in arid places are killed by the R.R. (i, j). Aug. 27-31: A=485, B=6, C=97.)

(34) August 27. Strong S.R. and R.R. in the morning (i), storm in the evening (m).

(35) August 28-30. The torrent water of the 27th is little absorbed by the soil, which dries rapidly. Weeds become poor, but the large number of pupae in the meadow continue to produce adults (a). (Sept. 1-5: A=652, B=5, C=130.)

NOTES ON SOME DIPTERA AT ST DAVIDS, PEMBROKESHIRE.

By H. W. ANDREWS.

From 19th May to 9th June 1949 I was at St Davids, and it has been suggested to me that a note on the Diptera taken might be of interest. Actually, I was disappointed, as the great majority of my captures consisted of generally common flies that might be expected anywhere. However, the remoteness of this so far unspoilt and uncrowded district, rich I was told in botanical species including several rarities, and with an abundance of land and sea birds, make it an attractive spot for the field naturalist.

This peninsula, ending in St Davids Head, is a treeless and wind-swept area. The shore includes Whitesands Bay, one of the larger breaks in the series of grand basaltic cliffs that form the coast line. This Bay is backed by a stretch of sand barrows, not overmuch sand and rather overgrown, not at all like real sand dunes as at Porthcawl; these barrows merge into wide areas of heath and common-land with

numerous swampy patches and small streamlets that find their way to the shore down narrow coombs, or seep through crevices on to the face of the cliffs. The roads and fields have high stone-cored banks in place of hedges; these are covered with turf, and often have a scanty topping of wind-blown gorse. At the time I was there the strips of vegetation on the road-sides, sheltered by the high banks and as yet uncut by the tidying hands of the local road authorities, abounded in various flowering plants, and the cliff tops too had a wealth of wild flowers, amongst which I was surprised to find several patches—some of considerable extent—of bluebells, a plant I had hitherto associated solely with woodlands.

St Davids is some 16 miles from the railway station at Haverfordwest, and about the same distance from Fishguard in the other direction, both places served by somewhat infrequent bus services. Those who have cars would find them useful to get to outlying localities such as Solva and Aber Mawr.

As regards the following list of captures, I must premise that I was collecting solely for my own purposes without any idea of publication, and therefore it can only be considered as very partially representative of the dipterous fauna of the district. Had I been collecting with a view to making a local list I should have included Nematocera and Acalypteratae, and probably a good many more species of other families.

BIBIONIDAE.

Bibio Marci, L. I mention this Nematoceron as not only was it quite abundant during the first 10 days or so of my visit, but I was told that earlier in the year it had been almost a plague.

LEPTIDAE.

Leptis scolopacea, L. Common on telegraph posts which here took the place of tree-trunks for this and other species of similar habits. It also occurred indoors on windows.

ASILIDAE.

Dysmachus trigonus, Mg. On the sand barrows; none noticed with prey.

THEREVIDAE.

Thereva annulata, Fab. On the sand barrows.

Thereva nobilitata, Fab.

EMPIDIDAE.

Empis tessellata, Fal.

Empis punctata, Mg.

Hilara maura, Fab. This Empid was generally common, but on 20th May about mid-day in fine warm weather I came across the largest swarm of this or any other Empid I have seen. It was hovering over a stream in the grounds of St David's Cathedral in a dense mass covering, I should estimate some two square yards. There must have been thousands of specimens of both sexes. The leaves of nearby shrubs were also covered with the flies.

DOLICHOPODIDAE.*Dolichopus unguatus*, L.*Dolichopus clavipes*, Hal.

Dolichopus signifer, Hal. Of this scarce species I took a small series of ♂♂ but only about half a dozen ♀♀ at Whitesand Bay. It seems to be a shore frequenting species as all my specimens were taken on rocks at the base of the cliffs, usually close to where the cliff face was wet with freshwater seepage but not on the actual wet surface. I never swept it off the cliff herbage, nor did it occur on the rocks nearer the sea as did *Aphrosylus celtiber*. The dark spot at the apex of the wings makes the ♂♂ easy to identify, but this is hardly noticeable in the ♀♀, which have, however, the same single bristle on the hind metatarsi.

Tachytrechus insignis, Stan. Swept from cliff herbage and also occurring on rocks like *D. signifer* but not common.

Argyra diaphana, Fab.*Syntornum pallipes*, Fab.

Liancalus virens, Scop. Common as usual on wet patches on the cliff face.

Sympycnus desoutteri, Par. Mr Parmenter tells me that most of our records of *S. annulipes*, Mg., refer to this new species of Parent (1925).

Aphrosylus celtiber, Hal. Common as usual on seaweed-covered rocks near the water edge.

SYRPHIDAE.*Chrysogaster hirtella*, Lw.*Chrysogaster virescens*, Lw.*Chilosia albitalris*, Mg.*Chilosia albitalris* var. *flavimana*, Mg.*Chilosia pulchripes*, Lw. On telegraph poles.*Chilosia nasutula*, Beck = *antiqua*, Verr.*Chilosia illustrata*, Harr.*Chilosia honesta*, Rond.*Platychirus manicatus*, Mg.*Melanostoma mellinum*, L.*Leucozona lucorum*, L.*Syrphus corollae*, Fab.*Sphaerophoria menthastris*, L., var. *picta*, Mg.

Rhingia campestris, Mg. Common on roadsides but not in great numbers.

Helophilus transfugus, L. Two out of three ♂♂ taken had the usual white lunules on the second abdominal segment reduced to two small white spots in the middle of the tergite. Verrall (Vol. 8) refers to this form but does not give a figure. Both this species and *H. lunulatus*, Mg., were taken at Aber Mawr, a "wooded" valley, rare in these parts, ending at the sea end in an alder swamp. It is about half-way between St Davids and Fishguard and looked a promising locality but I was only able to pay one visit.

Helophilus lunulatus, Mg.*Eumerus sabulonum*, Fall.*Sericomyia borealis*, Fall.

TACHINIDAE.

- Gymnochaeta viridis*, Flm. Males on telegraph poles. I saw no females.
Exorista (Phryxe) vulgaris, Fln.
Onesia agilis, Mg.
Sarcophaga carnaria, L.
Sarcophaga crassimargo, Pand.
Sarcophaga scaparia, Pand.

ANTHOMYIDAE.

- Phaonia incana*, W.
Mydaea urbana, Mg.
Helina lucorum, Fall.
Helina protuberans, Ztt. On the sand barrows.
Limnophora exsurda, Pand.
Hydrotaea ciliata, Fab.
Hydrotaea palaestrica, Mg. I took this species at Solva on the way to Haverfordwest. Not recognising it at the time, I only took a couple of specimens, but I am under the impression that it was not uncommon there.
Hylemyia variata, Fall.
Pegohylemyia discreta, Mg.
Pegohylemyia fugax, Mg.
Crioischia brassicae, Bouche.
Delia trichodaectyla, Rond.
Paregle aestiva, Mg.
Lispe tentaculata, De Geer.
Caricea tigrina, Fab. Very common everywhere and a nuisance in the sweeping net. One specimen taken with *Dolichopus signifer* as prey.
Hoplogaster mollicula, Fall.
Coenosia decipiens, Mg.
Coenosia trilineella, Ztt.
Fucellia maritima, Hall.
Morellia simplex, Lw.
Morellia aenescens, R.-D.
Myiospila meditabunda, Fab.
Mesembrina meridiana, L. On telegraph poles.
Schoenomyza litorella, Fall.

SCIOMYZIDAE.

- Sciomyza cinerella*, Fall.

CORDYLURIDAE.

- Scatophaga decipiens*, Hal.

MICROPEZIDAE.

- Calobata cibaria*, L.

SOME FURTHER NOTES ON TRYPETIDAE.

By M. NIBLETT, F.R.E.S.

The following notes refer to Trypetidae bred by me comparatively recently:—

Urophora quadriasciata, Mg.—This species is definitely double-brooded; I have bred a considerable number of the flies, the majority of which emerged in June of the second year. A small percentage have emerged in May, these undoubtedly giving rise to the brood emerging in July of the first year.

Phagocarpus permundus, Har.—From berries of *Pyracantha* sp. containing the larvae, kindly given to me by Mr S. Wakely, I had a good emergence of the flies in June of the following year. I had not found the larvae on this host previously.

Ceriocera cornuta, F.—Larvae collected in early July gave flies which emerged in August. All my previous emergences of this species have been in the second year, never earlier than June. It is probable that the flies emerging at the beginning of the month or possibly in May give rise to a second brood.

Ceriocera microceras, Hering.—This species, the larvae of which live in the stems of *Centaurea scabiosa*, L., appears to be widely distributed and to occur in fair numbers. I have bred it from larvae collected at Epsom Downs, Woodmansterne, Banstead Downs, Boxhill, Banstead Wood, Riddlesdown and Farthing Down.

Chaetorellia loricata, Rond.—From flower-heads of *Centaurea scabiosa* collected at Epsom Downs, 14.vii.49, I had five specimens of this species emerge 18.vii.49.

In 1862 Loew described a dark variety of *Trypetta jaceae*, R.D. In 1870 Rondani raised it to specific rank. I have been unable to trace any record of its host-plant ever being recorded.

I am indebted to Mr J. E. Collin for the determination of this species and of *Paroxyna elongatula*.

Trypetta (Orellia) colon, Mg.—Here again we have two broods, larvae collected in early July giving the flies by the end of the month. All larvae collected after July lay over, the flies not emerging until the following year.

Trypetta (Orellia) falcata, Scop.—This is, I believe, considered to be a rather local species. I have found the larvae in fair numbers in the stems of *Tragopogon pratense*, L., at Riddlesdown, Banstead Wood, Coulsdon, Selsdon Wood, Ashtead and Bookham Commons.

Paroxyna elongatula, Lw.—Flower-heads of *Bidens tripartita*, L., were found at Bookham Common and Norbury Park, in August, with larvae of this species in them. The flies emerged from these in some numbers in the latter part of the month and early September.

Oxyna flavipennis, Lw.—I had tried for a number of years to breed this species; galls on the roots of *Achillea millefolium*, L., were found in a number of localities between August and March; all, however, only contained empty puparia. After further search two galls were found on 1st July; from these two *flavipennis* emerged on the 15th of the month. I believe there is no previous record of the emergence time of this insect.

Trypanea stellata, Feussl.—I have collected over a period of years thousands of flower-heads of the reputed host-plants of this species. Several heads of *Senecio jacobaea*, L., from Riddlesdown, collected on 24th August, gave me several flies between 31st August and 8th September. From some heads of *Senecio erucifolius*, L., taken at Bookham Common on 4th August, one fly emerged on the 17th.

Sphenella marginata, Fln.—I think there is a possibility of there being at times two broods in a year of this species. The majority of flies I have bred have emerged in August or September, but from a few larvae collected in mid-July they emerged before the end of the month. Many of the larvae and pupae found in the flowers late in the season are, I find, usually parasitized by Chalcids or Braconids.

Hoplochaeta (Noeeta) pupillata, Fln.—I am able to record a hitherto unrecorded host-plant for this species. From a few flower-heads of *Picris hieracioides*, L., found at Denbies, Dorking, on 30.vii.49, with several larvae in them, a female *pupillata* emerged on 18.ix.49.

It should be noted that all localities given are in Surrey.

COLLECTING NOTES.

RHYACIA SIMULANS, HUFN., IN HERTS. AND BUCKS.—With reference to the letter from Dr E. A. Cockayne in your December issue, under the above heading, I took four specimens of this moth in 1945 at Great Kingshill, about four miles north-west of High Wycombe. They were all taken at valerian blossom at dusk on June 18th (2), July 6th, and September 9th. The place where they were taken is about 600 ft. above sea level. It may be that the species has spread northwards from the Chilterns into Hertfordshire.—R. SAUNDBY.

CURRENT NOTES.

ON p. 73 of your Vol. LXI, under the species *Eumenis pellucida*, Fruhst., form *cypriensis*, Holik, I made the following remark:—"full details of the revision of the *semele* group by Holik have not yet appeared . . ." I should have said that the revision of this group is being undertaken by Dr Gustaf de Lattin, to whom I was indebted for the determination. Dr Holik was merely the author of the name *cypriensis* but not of the revision. I regret that I misunderstood Dr de Lattin's letter to me and failed to give him the credit for distinguishing the various species hitherto lumped under the name *semele*. Dr Holik's description of *cypriensis* appeared in *Zeits. der Wiener Ent. Ges.*, 34, Jahrg., 15th July 1949 (No. 6/7), p. 99, as a race of *semele*. The revision by Dr de Lattin showing that it belongs to the good species *pellucida* has not yet appeared, as far as I know.—E. P. WILTSIRE.

I WOULD again urge all subscribers to pay as promptly as possible; it eases my work as Treasurer very much to get them in the first quarter of the year. I would also remind subscribers that Banker's Order forms for payment 1st January, February, or March are always available, and save much trouble.—H. W. ANDREWS.

REVIEW.

FILM STRIPS OF BRITISH INSECTS. Educational Productions Ltd., 17 Denbigh Street, Victoria, London, S.W.1. Strip No. 1. **THE PURPLE EMPEROR BUTTERFLY.** Photography and Notes by George E. Hyde, F.R.E.S. Comprising 27 Frames. Price 15/-, with Notes.

This—the first to be released—was shown to a crowded audience at the Meeting of the South London Entomological and Natural History Society held on 14th December in the rooms of the Royal Society, Burlington House, Piccadilly, London, W.1.

Mr E. E. Syms, the Society's Librarian, explained the film, making it clear that the apparatus available did not permit of it being shown properly and that it had had to be cut up and shown as if it were a series of slides. Such films, he said, had been recognised by Education Authorities as having great value in assisting teachers to make their subjects interesting and vivid to pupils. County Councils and other bodies were acquiring extensive libraries of strips covering a variety of subjects. This one shown comprised 27 frames, and included the butterfly itself, an attractive oak glade where it might be found, a distribution map, studies of the egg (*in situ* and enlarged), every stage of the caterpillar and pupa, and different phases of the life of the perfect insect. All this would doubtless open up a new world to the young. To this older audience it brought back to many happy memories of rearing and studying this insect and to those who had never been so fortunate as to have such a prize it recalled the rearing of commoner but equally fascinating kinds. Such an audience appreciated to the full the artistry and patience of Mr Hyde and the skill of the technicians. The complete series should impart biological knowledge to the young in a very easy and pleasant manner and the impression should be all the more lasting because the thing is seen as well as heard. Every teacher is well aware of the importance of such "visual aids."

Experts naturally had suggestions to make. Would it not be an advantage to have a large scale figure of the caterpillar so that its structure could be fully understood and such vexed questions as the number of its legs answered? And similarly with the butterfly itself. But perhaps these matters belong to another strip. Someone thought a teacher who was not an entomologist might have difficulty with some of the cleverly camouflaged items and that he or she—and the pupils—might be helped by the addition of arrows. But the great test was that members were keenly interested. Every success to the enterprise and what a pity there were not such things when we were at school.—
T. R. EAGLES, Editor, South London Ent. Soc.

ERRATA, VOL. LXI: 1949.

For WEUPHERILL read WEATHERILL in Contents of Vol. LXI, p. iv, "List of Contributors"; also on p. 101, of the same vol. (article "*Formica exsecta*, Nyl., as a Slavemaker") and in Contents (outside cover of October 1949 issue).

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

Desiderata—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Stivier Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted.—For the British Museum larval collection, larvae of Chrysomelid beetles, alive or preserved. Liberal exchange if required.—*Dr S. Maitlik, British Museum (Natural History), Cromwell Road, London, S.W.7.*

Wanted—Distribution Records, Notes on Abundance and Information regarding Local Lists of the Dipterous Families Empididae and Conopidae.—*Kenneth G. V. Smith, "Antipa," 38 Barrow Street, Much Wenlock, Salop.*

Wanted to Purchase—Leech's British Pyrales. Coloured Plate Edition.—*A. W. Richards, Nether Edge, Hawley, near Camberley.*

I have available a large number of good and minor aberrational forms of *Lysandra coridon*, which I can offer in exchange for other vars. of the same species.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted.—Specimens of *Velia currans* Fabr. (Hemiptera), in any condition, from all parts of the British Isles or Western Europe, especially from the more remote parts of the west and north, for taxonomic study.—*E. S. Brown, Hailey Lodge, Hertford Heath, Hertford.*

For Disposal—Stainton's "Natural History of Tineina." 13 Vols.; about 110 coloured plates, in excellent condition. **Wanted to Purchase**—Lucas' "Monograph of British Orthoptera"; Joys' Beetles, 3 Vols.—*W. J. Watts, 42 Bramerton Road, Beckenham, Kent.*

Duplicates.—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). **Desiderata**.—Numerous to renew.—*L. H. Bonaparte Wyse, Corballymore, Co. Waterford.*

Wanted—Seguy; Etudes les Mouches Parasites, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the Ent. Mon. Mag. for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 11a The Broadway, Portswood, Southampton.*

Communications received :—Thomas Greer, Fergus J. O'Rourke, O. Querei, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopolou, D. Fearneough, R. J. R. Levett, E. C. S. Blathwayt, E. P. Wilshire, A. E. Wright.

All Communications should be addressed to the Acting Editor, Mr. J. TURNER, "Latemar," 25 West Drive, Cheam.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: March 1st, April 5th, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W. 1: March 8, March 22. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

TO OUR READERS.

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LEPIDOPTERA OF WEST SUSSEX, 1949.

By Commander G. W. HARPER, R.N. (Retd.), F.R.E.S.

The year 1949 was remarkable for its long periods of drought, the very warm and fine late summer and early autumn, and for the effects of these on the Lepidoptera.

In general the season was rather below average as regards the numbers of individuals appearing in most species. I think that this was at least in part the result of the sunless chilly summer of 1948 with its reduced insect numbers, and in part due to the shortage of food caused by the parched vegetation of the late 1949 summer. I support this view by my observations of the hibernated butterflies and moths which were markedly scarce; by the relative failure of the migrant butterflies, especially the Coliads, to establish themselves in spite of ideal weather; and by the large proportion of undersized specimens of the later broods of many resident species.

However, a goodly number of species did show a welcome improvement in numbers, and others also which in recent years have been increasing maintained or further increased their populations.

The winter was mild in Sussex, with a few spells of frost but practically no snow. The early months of the year were remarkable for the decline and scarcity of *Erannis leucophaearia* and *Theria rupicapraria*, and later in March of *Alsophila aescularia* and *Apocheima hispidaria* also; I was only able to find one of the latter when "tree trunking." At the same time the hibernated moths and butterflies were much scarcer than last year, notably *Nymphalis io* and *Aglais urticae*, exceptions being *Polygonia c-album* and *N. polychloros*, which were present in about normal numbers. The latter species on 14th April, a very warm sunny day, was unusually tame; a big specimen came and settled twice in a few minutes on my daughter's white woollen jumper as she sat quietly near the edge of a wood.

By the middle of March the frosty weather gave way finally to a warm and on the whole sunny spring. *Brephos parthenias* was much scarcer than usual in March, but in April *B. notha* was present in good numbers among the aspens. The sallow catkins were ripe in March, and for the first time in my experience *Orthosia populeti* was present in fair numbers, and also at light; *O. munda* was exceptionally abundant and variable, some beautiful forms being taken.

On 9th April a very early *Argynnis euphrosyne* was seen, but the main emergence did not appear until the second week in May, a normal date. *Pararge megaera* on 29th April was another early emergence, together with *Mamestra brassicae* and *Pheosia tremula*, the latter being more abundant than I have ever known it, particularly at my light trap.

May was, on the whole, fine and warm by day, but with very cold nights; already the dry weather was becoming serious. Larvae of *Trichiura crataegi* were unusually abundant, especially on young birch trees, while imagines of *Gonodontis bidentata* were in profusion, my light trap being filled with them night after night! Butterflies were below average in numbers, especially *Lycaenopsis argiolus*, but exceptionally it was good to note that *Lysandra bellargus* and *Polyommatus*

icarus had continued the improvement noted in 1947 and 1948. Both these species were emerging in large numbers by the end of May; the females of the latter species appeared to be more blue than usual.

June continued dry, with very cool nights, so that sugar and light were equally unattractive. Butterflies also continued to be scarce, and the only migrants seen were a few *Plusia gamma* at Valerian blossoms at dusk. The only notably abundant species was *Panemeria tenebrata* in hay fields and swarms of *Eupithecia vulgata* every night in the light trap. Notably absent was *Argynnis cydippe*; this lovely insect has been declining steadily since 1943, and now is definitely rare. Local colonies of *Plebejus argus* were, however, in good heart and well out by 21st June. On the 26th the first migrant butterflies were seen, a ♂ *Colias croceus* and several worn *Vaunessa cardui* on the South Downs. From this date onwards the weather continued as dry as before but warmed up steadily, night and day, and by the end of the month some fine *Geometra papilionaria* came to light.

The arrival of high temperatures in July made both sugar and light more attractive at last, and in particular all the common species were present in large numbers on the W. Sussex sandhills, examples being *Leucania littoralis* which swarmed on the Marram grass, *Agrotis ripae* in fair numbers, while on the heather I was pleased to find *Sterrhia sylvestraria*, and numbers of *Cybosia mesomella*. By the middle of the month the Sussex countryside was beginning to look as yellow and parched as Malta at the same time of year, and these conditions continued here all through the summer. As the month progressed *Euxoa tritici* in large numbers took the place of *A. ripae* on the sand-hills, together with *A. vestigialis* and many other Noctuae in good numbers, including *Hydraecia paludis* showing great variation. *Procas bicoloria* swarmed on the ragwort, a single stroke of the net securing over a dozen individuals! On the other hand, the woodlands were very unproductive, due perhaps to the unnatural dryness of the environment. On the 22nd July an interesting note was a flight of Cockchafers round a sallow bush at dusk—these were considerably smaller than the Common Cockchafer, *Melolontha vulgaris*, and were perhaps of a different species considering the time of year.

A fortnight's holiday in Inverness-shire from 26th July to 9th August was rather disappointing entomologically; the fine warm summer there had caused all the July insects to be past their best or quite over, added to which the weather broke as we arrived, being cold and showery all the time. *Erebia aethiops* was emerging; however, and there was a fair number of Geometrae on the high ground.

Returning to West Sussex on the 11th August the warm dry weather continued, and *Colias croceus* was flying in fair numbers, but it never became really abundant, probably due to the completely parched clover fields. The countryside was now absolutely brown—hardly a blade of green grass to be seen. The second brood of *L. bellargus* was, however, abundant early in the month, and *P. icarus* swarmed to the greatest extent I ever remember. Other butterflies, notably *N. io*, *V. atalanta* and *A. urticae*, were scarce, *V. cardui* only being moderately common.

The end of August saw a remarkable increase in the numbers of Noctuae on the sandhills, and sugar was amazingly attractive right on

through the autumn. As many as twenty and thirty moths on each sugar patch were the rule, mostly *A. segetum* in great variety, *A. vestigialis*, a second brood in moderate numbers of small-sized *L. littoralis*, etc. Three *Caradrina ambigua*, two *Laphygma exigua* and a single very fresh *L. albipuncta* were also taken.

From the 26th August to the 22nd September occurred the great experience of the year—the emergence of *Celerio lineata livornica* in large numbers. This was recorded in the *Entomologist*, 82: 261. Briefly the moths appeared over petunia blossoms before dawn and after sunset in numbers almost every day, even in rain, of which at last a few thundery showers were gratefully recorded! On 31st August a fresh *Pararge aegeria* was captured, indicating a third brood, unusual in this species.

September continued dry and warm, though a little thundery rain occasionally occurred. Considerable searching only revealed two *Rhodometra sacraria*, recorded more commonly from the West of England. On the 13th, however, a splendid ♀ *Cosmolyce boeticus* was seen, and missed, by my son in a local garden. Sugar continued attractive to the common moths, *Agrotis ypsilon*, *A. saucia* and *Amathes c-nigrum* adding themselves to the swarms of *A. segetum*. *Macroglossum stellatarum* emerged in considerable numbers, the larvae also having been common on Galium in August, and they were joined by fair numbers of *Plusia gamma*. By the end of the month, and early in October, there was a sudden increase in the numbers of *V. atlanta* on the coast; these were far from fresh, and although no conclusive evidence by marking was found, I think it very probable that these insects were migrating Southward from Northern districts. *N. io* remained very scarce, but a fairly good third brood of *Lycaena phlaeas* put in a welcome appearance. *Colias croceus* remained moderately plentiful until mid-October, decreasing rapidly after the equinoctial gales, which were late this year. Ivy and Yew blossom were moderately attractive, outstanding being the unusual abundance of *Conistra ligula* and equal scarcity of *C. vaccinii*, a reversal of their usual rôles in West Sussex.

On 19th November the last *M. stellatarum* was seen feeding. Thus a glorious year, but not remarkable for quantities of Lepidoptera, approached its close.

THERA JUNIPERATA, L., SSP. ORCADENSIS.

By E. A. COCKAYNE, D.M., F.R.C.P.

Thera juniperata, L., ssp. **orcadensis**, ssp. nov.

Forewing—ground colour clearer and more cream coloured than that of ssp. *scotica*, Buchanan-White; sub-basal and basal lines very distinct and the space between them filled in with brown-grey, rich brown, or blackish-brown; antemedian and postmedian lines blacker and broader than in *scotica*; the median area of the same colour as the band between the sub-basal and basal lines; the submarginal shade more distinct than in *scotica* and usually forming a well-marked band.

Hindwing—postmedian line thick and very distinct.

Underside—there is a broad dark postmedian line.

Type. ♂. Orkney, 1900. E. A. Cockayne coll.

Allotype. ♀. Orkney, McArthur, 1895. E. A. Cockayne coll.

Paratypes. 1 ♂, Orkney, 1895, 1 ♀, Orkney, Hoy, 1895, McArthur; 1 ♂, Orkney, 1900; E. A. Cockayne coll. 1 ♂, Orkney, H. B. Williams coll.; 2 ♀♀, Orkney, 1900. E. A. Cockayne coll.; 2 ♀♀, Orkney. H. B. Williams coll. 1 ♀, Orkney, Hoy, 1895, McArthur. Rothschild coll.

Barrett gives a figure of a female of this form (Pl. 367, fig. 3 c), but the contrast between the clear cream ground colour and the dark areas is not brought out sufficiently. This figure is stated to be that of a Shetland specimen in the F. J. Hanbury collection, but there was no Shetland specimen in his collection. Dr H. B. Williams and I bought the series and all were from Orkney. In the text (vol. 8, pp. 361, 362) Barrett describes Orkney and Shetland specimens, but since he made a mistake in the locality of the specimen he figured it is probable that he had had examples from Orkney only before him. I can find no first hand record of this species from Shetland, nor have I been able to find any in the British Museum from this locality. It does not appear in McArthur's list, but is recorded in all the lists of Shetland Lepidoptera published after Barrett's Lepidoptera of the British Islands, and in these it may have been copied from Barrett's book. Juniper, however, is found in Shetland, so that, if absent, it is not on account of the absence of its food plant.

THE ISOPOD PLATYARTHROUS HOFFMANSEGGI, BRANDT, AND ITS RELATION TO ANTS.

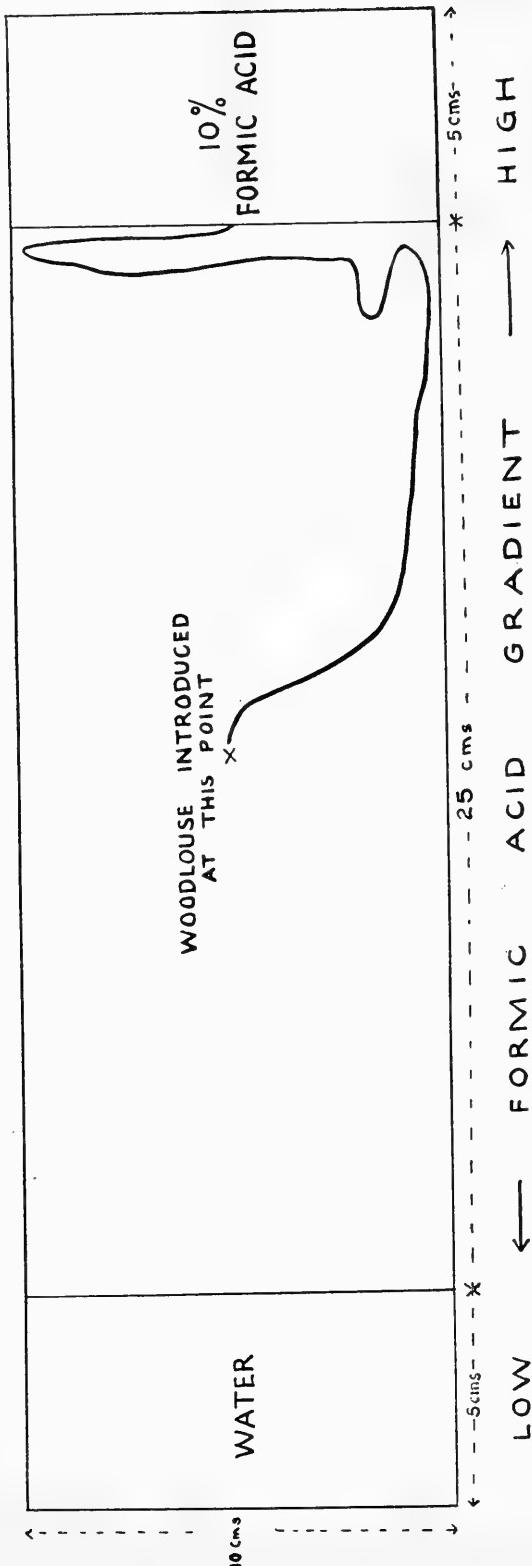
By FERGUS J. O'ROURKE, M.Sc., Ph.D., M.B., F.R.E.S.

Plate I.

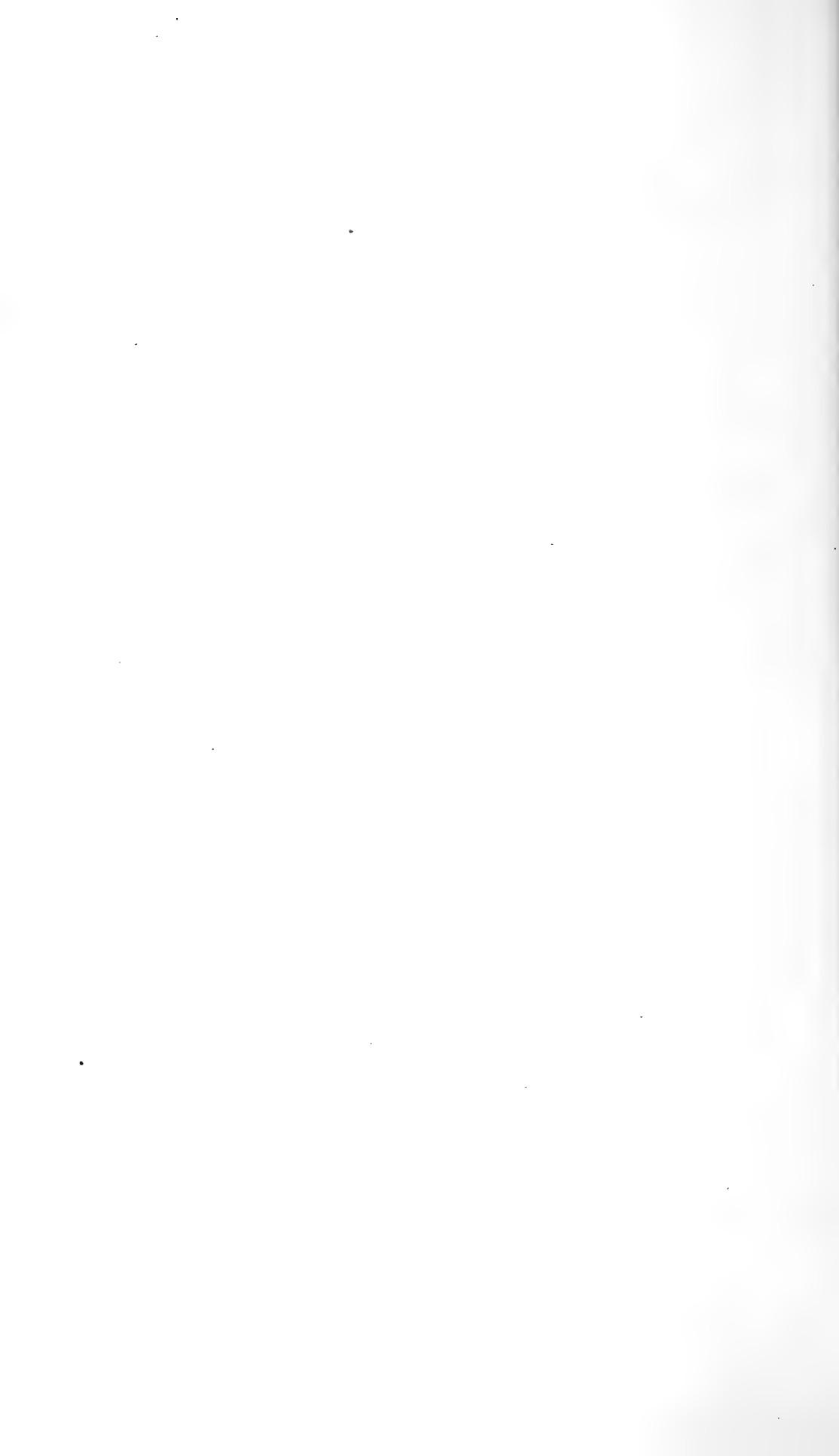
The blind woodlouse, *Platyarthrus hoffmanseggi*, which is commonly found in the nests of certain ants, is the subject of a paper by Brooks (1942), who has put forward a theory to account for its myrmecophily. Experiments similar to those described in that paper have been carried out in Ireland and are described below. Some of the conclusions reached support Brooks' theory, whilst others do not.

Brooks showed that *Platyarthrus*, when put into a gradient of formic acid, will move towards the end of the chamber which contains the higher formic acid content. A gradient was set up in a chamber 35 cms. × 10 cms. × 3.1 cms., with 10% solution of formic acid at one end and water at the other. I have been able to show that such a formic acid gradient does exist by hanging moist universal indicator papers along a thread at 2.5 cms. intervals. This gradient becomes stable after a few hours, and remains stable for some days. When *Platyarthrus* is introduced into the gradient, it walks towards the formic acid and Irish specimens do so just as did American ones. A typical experiment is shown in Figure 1. *Oniscus ocellus* did not exhibit such a preference. When 10% propionic acid is substituted for formic acid, no such response occurred, showing that the response is not merely an attraction towards volatile fatty acids.

Brooks concluded that as formic acid vapour may be present in the tunnels of ants nests the response to formic acid is in part responsible



TRACK OF PLATYARTHRUS IN FORMIC ACID GRADIENT IN 8 MINUTES



for the fact that this woodlouse is, in most cases, found only in ants' nests.

Most authorities believe that *Platyarthrus* is a symphile (i.e., a true guest), and Wheeler (1910) and Wasmann (1925) believe that it is panmyrmecophilous. Carl (1908), who found it under stones far from ant nests, regarded it as a synoekete (i.e., an indifferently treated intruder in an ant colony). Brook has, however, pointed out that it occurs only in the nests of certain species and that the association is not merely fortuitous. In Europe the ants* with which it has been found are:—

*There are some misprints in the list of ants given by Brooks which have been corrected here.

<i>Crematagaster scutellaris.</i>	<i>L. alienus.</i>
<i>Tetramorium caespitum.</i>	<i>L. brunneus.</i>
<i>Myrmica rubra.</i>	<i>L. flavus.</i>
<i>M. laevinodis.</i>	<i>L. mixtus.</i>
<i>M. laevinodis</i> , var. <i>ruginodo</i> <i>laevinodis.</i>	<i>L. urbratus.</i>
<i>M. sulcinodis.</i>	<i>Formica exsecta.</i>
<i>M. scabrinodis.</i>	<i>F. rufa.</i>
<i>M. sabuleti.</i>	<i>F. pratensis.</i>
<i>Camponotus herculeanus</i> <i>ligniperda.</i>	<i>F. sanguinea.</i>
<i>Lasius fuliginosus.</i>	<i>F. fusca.</i>
<i>L. niger.</i>	<i>F. fusca glebaria.</i>
	<i>F. fusca rubescens.</i>
	<i>Atta cephalotes.</i>

In Ireland I have found it with *Myrmica laevinodis*, *M. sabuleti*, *Lasius flavus*, *L. niger* and *Formica fusca*, and two specimens taken from a *M. laevinodis* nest lived happily in an artificial colony of *Leptothorax acervorum* for more than three months. The woodlouse has probably been introduced into America and it has been found with *Aphaenogaster fulva aquia*, *Leptothorax longispinosus*, *Lasius brevicornis*, *L. niger*, var. *neoniger*, *Formica exsectoides* and *F. pallide fulva schaufussi*.

If we examine the list of ant hosts it will be found that of the 26 species listed 16 belong to the subfamily *Formicinae* and 9 belong to the *Myrmicinae*.

Stumper (1923) showed that only the sub-family *Formicinae* secrete formic acid, and I have shown (O'Rourke, 1950) that there is no evidence that any other subfamily secretes this acid. It is clear, therefore, that *Platyarthrus* cannot rely on formic acid alone to attract it into a suitable environment since it is found in the nests of species which do not secrete formic acid. Thus, Brooks' theory cannot completely solve the problem of the myrmecophily of this woodlouse. It may be suggested that the preference shown by the isopod for the odour of formic acid, is a persistence of an adaptation to the odour of Formicine ants to whose nests it originally came as an inquiline. At first it was limited to Formicine nests, but at a later stage of its evolution developed its panmyrmecophilous habits. It is, therefore, of great interest that the original adaptation should persist in specimens taken from both Myrmicine and Formicine nests on both sides of the Atlantic.

That other factors serve to keep the woodlouse in the ant colony is clear, and Brooks himself has shown that *Platyarthrus* responds posi-

tively to moist air and shows a reduced klinokinesis in the light, both of which factors serve to keep it in the humid, dark ecoclimate of the ant nest.

Many problems still remain to be solved. The food of this myrmecophile is still unknown. Andre (fide Lubbock 1898) suggested that it acts as a scavenger in the nest, and I have never seen *Platyarthrus* obtain food from an ant, although I have watched many kept in artificial nests.

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FIELD NOTES FROM ANATOLIA.

By MALCOLM BURR, D.Sc., F.R.E.S.

Plate II.

VI.

Dinar.

The steppe fauna of Anatolia had always eluded me. My first visit was in April, that is too soon, my second in August, that is too late. All my other collecting in Anatolia had been in the territory of the Mediterranean fauna and flora. In the summer of 1949 Peter Davis was coming out to continue his collecting in the latter area and invited me to join him again. I did so gladly, but took the opportunity of making a short stay in the steppe, which is quite a different world. In western Anatolia the Mediterranean influence penetrates deeply through the numerous indentations of the coast and up the valleys.

After about seven hours in the train, up the shores of the Gulf of Ismit the line climbs up the plateau and before dark, instead of the rich flora of the coast, it was brown, treeless hills that I was looking at. At eight the next morning it was a limestone plateau, with tall spikes of *Verbascum*, in which this country is extremely rich, and another upstanding plant with yellow flowers, woad, *Isatis tinctoria*. We stopped at a curious place called Karakuyu, a station without a town, even without a village. There are only the station buildings, with a few cottages for the staff. Its *raison d'être* is that the line forks here and there is a good water supply. Up here, of course, there are no plane trees, which are replaced by magnificent poplars, with white bark, affording massive shade and homes for numerous sparrows. Nearby is an extensive marsh, the waters of which soak away through crevices in the limestone, to burst out as a gushing stream at Dinar, a little further



1. Limestone Plateau above Dinar, with *Verbascum*.
2. Sakici köyü near Dinar.
3. The source of the Menderes (Maeander) at Dinar.
4. Marshy country below Dinar. The Limestone Hills in the background. The line of trees shows the oasis of Dinar.

down, the source of the Menderes, which is more famous in history as the Maeander. Another surprising thing about this place was the fact that the buffet supplied huge piles of really good clotted cream, astonishing in this arid land. A dozen or so more kilometres brought me to the little town of Dinar, smiling among a mass of greenery, refreshing to the eye after the bare limestone plateau.

Dinar, like practically all towns in this country, has its historic past. It was founded by Antiochus Soter, who called it Apameia after his mother, and it owes its success to the abundant water supply. It is the centre of a restricted but rich agricultural district, forming a green and agreeable oasis. But the inevitable marshes below the town are a source of malaria, which has given it rather a bad name and kept the population down. It is hardly more than a couple of thousand. Its name was given as a tribute to its agricultural wealth, that is, from the old gold coin *denarius*.

The stream, rising as a ready-made river out of a cliff, runs through the little town with a rapid current that feeds several mills and a number of permanently open taps down the main road. *Agrion splendens* was a common sight, flying surprisingly swiftly down the main street.

Above the town there is the extensive plateau of limestone, bare of trees or almost so. Here and there are spots cultivated and some open, earthy patches. Here was a fairly rich fauna, though the flora was scanty, the most prominent plant being the tall spikes of mullein. Here for the first time I made acquaintance with *Pyrgodera armata*, a very striking Oedipodid, which differs from its relative in running to compression rather than depression, so that it has a narrow, high crested pronotum: the wings are scarlet at the base with a broad black fascia, which makes it very conspicuous on the wing, but, with its cryptic coloration running from deep brown to pale greyish and even mauve, it vanished on settling, a remarkable instance of the value of flash coloration. Like so many Acridians, it has the trick of flying off in a parabola and always landing facing the enemy.

Another new acquaintance was a rather small *Saga*, presumably the regular Anatolian *S. cappadocica*, which I had not seen before, although I had found three species in Macedonia. It appeared as a pleasant surprise in my net. Characteristic was a big *Tmethis*, I expect *T. heldreichi*, which I used to take also in Macedonia: the form *limnata*, with a clear pale rim round the pronotum was fairly numerous. The females are big, flat and sluggish. *Dociostaurus* was chiefly immature—it was June 30th—but there were more than one species. Of Mantids few: no *Bolivaria* that day, but several nymphs of *Ameles*, no doubt the Levantine *heldreichi*. Curious, that in the western Mediterranean there are four species, but no others have been discriminated in the eastern portion.

Of other insects, a few Odonata cruised by, strong on the wing. A big, black-winged *Bombylius* was common. Butterflies were not numerous. I saw a skipper that looked to me like *Nisionades* and Satyrids that I took for *S. briseis* and *S. jurtina*.

There was little other sign of life. I saw few lizards or snakes and of birds but an occasional wheatear.

I returned to the richest corner of these limestone hills that I could find, but did not add greatly to the list. I came to the conclusion that

the commonest grasshopper there is *Notostaurus anatolicus*, varied with a few *Oedipoda miniata* (= *gratiosa*), *Gastrimargus* and one or two *Oed. aurea*, with lovely golden wings. An interesting find was a *Nocarodes*. The males of these curious little grasshoppers, which recall the figure of a knight on the chessboard, are often conspicuous in their colouration, with a fawn or tawny contrasting with black. The genus has split into a considerable number of isolated species and new ones are being added. The females are much bigger than the males and the abdomens straight, but when emptied, these curve upwards like those of the males. One big fat female was clinging to a stem of wheat, as though trying to climb up it. This is interesting, for normally they are ground-lovers, but Davis found one on a tree in another part of the country and I have found related forms six feet from the ground on trees in Africa.

Unfortunately, it was too early for Decticids: there were a fair number of nymphs of *Platycleis*, but a single adult that eluded me. They were numerous on the edge of a small clump of trees on a hill top, that afforded more cover, where I found immature specimens of *Bucephalana*, which ranges as far west as Salonika, and *Incertana*, which does not seem to go much farther west than Istanbul.

In a shallow dell I found some immature *Bolivaria*, the common Mantid of the steppe country, and a single *Empusa fasciata*.

I returned to Dinar on 20th July and visited the same spots, but did not find any *Nocarodes*, *Tmethis* or *Saga*. They are all early forms, and must have ended their days in the meanwhile, though I have found *Nocarodes* much later in the mountains. The dominant grasshoppers then were *Notostaurus*, *Pyrgodera*, some *Ramburiella*, a regular southern form, *Oed. miniata* and *Gastrimargus*.*

Below the town the streams become sluggish and there are a good many small marshes and fields with rushes. Here there were plenty of Odonata and I got several *Lestes*, some blue *Coenagrionids*, *Agrion splendens* and some yellow *Sympetrum* and one red one. The fauna was rather scanty. Among some thickets of rush and Iris there were plenty of *Chorthippus parallelus*, some immature ones that might be *Ch. dorsatus*, and some quite small Decticid and Phaneropterid larvae. I was disappointed that the only earwig I found in a promising locality was *F. auricularia*. They were of normal coloration, with a rather high proportion of macrolabious specimens. Of Tettigonids, a single female of *Conocephalus fuscus*, which made me wonder why there was an isolated individual. The elytra and wings seemed to me to be unusually long. On the more open ground there were plenty of *Oedipoda miniata* and *Chorthippus dorsatus*. Nor were there many butterflies. I took one *Papilio podalirius*, saw some small, rather insignificant blues and coppers, *P. cardui* and *Melanargia*, which is common enough all round.

A strange-looking, white ridge on the far side of the town attracted me, but when I got to it I found a heap of sterile sand, with a few scrubby stumps of the usual chermes oak and no insect life except passers-by, such as a few cruising Odonata and butterflies. Then I moved across to a brown hillside with big dotted trees, that looked like an English

*Here and there were occasional specimens of a heavy, fat *Dociostaurus*, which seems to be *D. crassiusculus*, P., described from Spain by Pantel, but I did not turn up a male.

park. The trees turned out to be the curious *Quercus aegilops*, with a restricted distribution that produces enormous acorns that are exported owing to their high tannin content. The ground was the detritus of some massive conglomerate and tried to support what seemed to be a poor crop of flax. Here there were some of the characteristic grasshopper *Notosaurus anatolicus*, Kr., and *Oedipoda miniata*, several of the latter having the white spot on the pronotum, which makes their concealment more complete than ever, as they so closely resemble the little white pebbles that are scattered among the prevailing brown.

On the far side I came down to a hamlet called Sakici köyü, with a village pond. Here were a fair number of Odonata, with the usual *A. splendens*, with the small, very distinct white spot on the elytra as they all seem to have in southern Turkey. Sweeping near the pond among the grass and rushes produced *Acrydium subulatum* and a pair of *Gryllus desertus*. There were plenty of *Paracinema tricolor*, but still very young.

On 5th July I took a car to the railway junction at Karakuyu, to pick up the train from Ankara, in which I was to meet Peter Davis and his friends. Round the station was all limestone, and while waiting I took the usual *Pyrgodera armata*, *Oedipoda miniata* and *Oed. aurea*. About eleven the train came in and we left for railhead at Burdur on our way to the coast at Antalya.

(To be continued.)

COMMENTS ON "OBSERVATIONS ON THE LIFE HISTORIES OF CERTAIN BUTTERFLIES OF FREETOWN, SIERRA LEONE."

By D. G. SEVASTOPULO, F.R.E.S.

The following supplementary notes from my experience in East Africa may be of interest when read in conjunction with Surgeon-Lieutenant-Commander Darlow's paper (1949, *Entomologist's Record*, lxi, 126).

I was particularly interested in the comparison between the larva of *Papilio demodocus*, Esp., and that of the very similar *P. demoleus*, L. It is difficult to make a true comparison without living examples of both species in front of one, but basing myself on my own descriptions and memory, there are points on which I do not agree with Lieutenant-Commander Darlow. Taking his points one by one, there are the following comments:—

(1) I would describe the osmaterium of *demodocus* as orange with the apical third scarlet; I have seen no East African examples in which the base could be described as "light brown." In *demoleus* I think scarlet or vermillion is a better description than pink.

(2) The oblique stripes on the 4th and 5th abdominal somites are usually lilac-brown in *demodocus* larvae that have fed up in exposed surroundings; they are black in larvae bred in captivity or in the shade.

I would not care to comment on the actual shape and colour of these stripes in *demoleus*, but my recollection is that they also were black in larvae reared in captivity and some shade of lilac-brown in wild larvae.

(3) The dorso-lateral spot of the 6th abdominal somite varies in colour with the oblique stripe on the two preceding somites. I would not like to state definitely that this is always present in *demodocus*, nor that the more laterally placed spot was never present in *demoleus*. Both larvae are very variable both in the colour and extent of these markings.

(4) The spots referred to are more usually present in the darkest forms of *demoleus*, i.e., in those larvae which have been reared in captivity. I also have not so far found these spots on *demodocus* larvae.

(5) The 3rd thoracic somite is only banded anteriorly; it is the 1st abdominal that has the posterior band. I have not found that these bands are always black in *demodocus*; the intersegmental skin between the 1st and 2nd abdominal somites is black but the band itself varies with the oblique stripes. The slightly raised tubercles bordered with light blue are, I think, common to both larvae.

(6) This is the most certain mark of distinction between the two larvae. The border in *demodocus* varies from lilac-brown to black, but it appears to be always present, whereas I have never seen it in *demoleus* larvae.

I agree that the cephalic horns appear to be slightly longer in the pupa of *demodocus* than in *demoleus*. There is also another point of difference. All the green and orange-pink pupae of *demodocus* that I have seen have had a purple dorsal and lateral stripe—I have seen no green or orange-pink example of *demodocus* without this stripe, and I have seen no *demoleus* pupa of the corresponding colours with it.

The following food-plants are recorded of some of the other species mentioned :—

Acraea terpsichore, L.—*Triumfetta* and *Hermannia* spp.

Papilio pylades, F.—*Anonaceae* spp.

Coeliades forestan, Cr.—*Combretum*, Beans, *Robinia*, *Solanum*, *Geranium*, *Millettia*. I have also found and reared it on *Quisqualis indica* (Combretaceae).

COLLECTING NOTES.

DURING the last few months there has been but few items sent for the above column. The weather has been abnormal, and the normal growth and time of abundance of our commonest species must have been affected. Species are now being awakened by the early mild temperature. *Rhamni* ♂ was flying in my garden the last week in February. *Monodactyla* on the fences nearby. Please send in your records.

HADENA CUCUBALI, SCHIFF., AB. BONDII, TURNER.—In Newman's *British Moths*, p. 387, under the name *Dianthoecia capsincola* there is a figure of a remarkable aberration from the Bond collection said to have come from the neighbourhood of Salisbury (*Young Naturalist*, 1883, 4, 183). It was named ab. *bondii* by H. J. Turner in his Supplement to the British Noctuae (*Ent. Record*, 1943, 55 (87)). There is no doubt that this insect, which I bought at the Horne sale, is an aberration of *Hadena cucubali*, Schiff., not *bicruris*, Hufn. = *capsincola*, Schiff. Apart from its shape and small size, the subterminal line, unusually broad and clear, shows the sharp bend towards the anal angle characteristic of *cucubali* and not the more even curve of *bicruris*. The shape of the subterminal line is quite constant in both species and is the easiest and most reliable character by which to differentiate them, for the distinctive colour of *cucubali* may fade.—E. A. COCKAYNE, 8 High Street, Tring.

CURRENT NOTES.

WE regret that in the October number of last year the article entitled "*Formica exsecta*, Nyl, as a Slavemaker," the name of the writer of the article was given in error and should have been L. H. Weatherill.

THE late autumn and early winter of the past season has been so excessively dry that many larvae which feed in the stems or on the leaves must have perished or failed to produce imagoes of typical size.

WHAT have been the results at sugar this last August?

CAN anyone give a summary of what is published in the Belgian journals or notes on a new species of *Colias*?

RECORDS of emigrants during the past year would be good to have for comparison with some of the very full years last recorded.

WE hear that the long-awaited Proceedings of the South London Society, 1947-8 volume, is ready for issue.

HERE again we get but poor or no information of many lines of the kinds of information we used to get so freely: (1) The contents of the Entomological magazines which so often came from nearby countries; (2) What areas formerly areas open to the naturalist in the past but now remaining closed, permanently or temporarily; (3) Breeding results of which we had a most useful example recently in that of *lithonia*; (4) The moths of medium size which are not attractive in colour or marking, although from a newly-worked district. I have several boxes of such caught mainly at light in the district lying between Fort Beaufort and Port Alfred in the northern part of Cape Province. A few are in papers; all in good condition. Who is working on such, or willing to work on such, material?

THE review of the Irish Ordnance Survey Biological Map, in the December part of Volume 61, suggests that such a map is an innovation, whereas a map with numbers for the divisions dates back to Babington, 1859, while the map with present revised numbers and divisions is that of Lloyd Praeger, 1896, who added the letters in 1906. Your reviewer might have pointed out that, although the county limits can be found in most atlases, the vice-county boundaries cannot, and the Irish Ordnance Survey map gives no indication as to where the explanation is to be found.

In this country we have long used a county and vice-county map of England, Wales, Scotland and Ireland, and it has been brought up to date more than once, and can be purchased from Messrs Oliver & Boyd, of Edinburgh.

An explanation of the vice-county divisions can be found in "A Plea for Uniformity in the Method of Recording Insect Captures," E.M.M., 1931, 67: 183-193.—FRANK BALFOUR-BROWNE, Brocklehurst, Collin, Dumfries.

THE January-June issue of *Eos*, the Revista Espanol de Entomología, has an important revision of the Western Palaearctic Species of the Genus *Acrida*, Linn., by V. M. Dirsh. This is a very interesting work, for the curious, elongated, snouted grasshopper generally known as *Acrida turrita*, L., according to literature, ranges throughout Africa, Southern Europe and Asia to Malaya and Australia. Revision has shown what was really to be expected, that in fact a considerable number of species have been lumped together under the one name, all closely resembling each other, yet specifically distinct. With the material at hand, Dr Dirsh has discriminated no less than 14 distinct species and established 7 subspecies. The genus was certainly evolved in savannah country, perhaps in Africa. It is certainly what is termed a Gondwaná group.—M. B.

WE have received a long and interesting article from our well-known able correspondent, E. P. Wiltshire, "Some Notes on the Shatt el Arab Oasis and its Insects." Also two further plates from Dr Malcolm Burr with the account of his Anatolian wanderings. We are still awaiting Collecting Notes.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—P. Striter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.

Wanted.—For the British Museum larval collection, larvae of Chrysomelid beetles, alive or preserved. Liberal exchange if required.—Dr S. Maultby, British Museum (Natural History), Cromwell Road, London, S.W.7.

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—Kenneth G. V. Smith, Antiopa, 38 Barrow Street, Much Wenlock, Salop.

Wanted—Seguy; Etudes les Mouches Parasites, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the Ent. Mon. Mag. for April 1938.—Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.

I have available a large number of good and minor aberrational forms of *Lysandra coridon*, which I can offer in exchange for other vars. of the same species.—Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.

Duplicates—*Croceus*, *Helice*, **Hyperanthus* and var. *arete*, and intermediate forms **Egeria*, **C. album*, **atalanta*, **io*, **selene*, *Euphydryas*, **megeara* (*=bred). Desiderata—*Rhopalocera* only, especially ova, larvae or pupae.—A. J. Exeter, Fernlea, Blackberry Lane, Four Marks, near Alton.

Duplicates.—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). Desiderata.—Numerous to renew.—L. H. Bonaparte Wyse, Corballymore, Co. Waterford.

Communications received:—Thomas Greer, Fergus J. O'Rourke, O. Querci, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopulo, D. Fearneough, R. J. R. Levett, E. C. S. Blathwayt, E. P. Wiltshire, A. E. Wright.

All Communications should be addressed to the Acting Editor, H. J. TURNER, "Latemar," 25 West Drive, Cheam, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: April 5th, May 3rd, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: March 22nd, April 12th. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

TO OUR READERS.

Short Collecting Notes and Current Notes. Please, Early.—Eds.

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ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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MAY 25 1950

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SOME NOTES ON THE SHATT EL ARAB OASIS AND ITS INSECTS.

MAY 25 1950

By E. P. WILTSHERE, F.R.E.S.

In ~~HARVARD UNIVERSITY~~ articles* I have described various oasis, desert and mountain biotopes in Iraq; I have also in a small book† summarised these biotopes and given a general list of the Lepidoptera of that country. The present article completes the series of articles describing the biotopes; it describes the oasis of the Shatt el Arab (ancient Pasitigris), that is, the sixty miles of river between the confluence of the Euphrates and Tigris and the sea. The oasis insects hereunder mentioned are all either Lepidoptera or Orthoptera. I am not a special student of the latter order, and do not attempt to deal with it exhaustively here; only one Gryllid and eight Acridids are listed, and for the identification of the latter, and for the remarks on their range, I am indebted to Dr B. P. Uvarov, C.M.G., D.Sc. Of the Lepidoptera, the Pyralididae and other "Micro" families are, with one or two exceptions, omitted.

I resided at Basra for nearly two years, from 1942-44. I also visited Khorramshahr, at the confluence of the Karun with the Shatt el Arab, twice in 1938. The material listed below was nearly all collected at these two places, but in one case, *Catocala neonympha*, I have listed a species taken by others before me, but missed by myself, at Basra.

The oasis consists of date-palm-gardens covering both banks of the Shatt el Arab for about fifty miles. The best stretch of this oasis is above the confluence of the Karun. Fao is on the right bank at the bottom of the oasis. The breadth of the two cultivated strips on either bank varies from a few hundred yards to a mile or two; creeks, canals and ditches lead the slightly brackish estuary-water into the palm-gardens by tidal lift. *Typha* grows in these ditches but is not infested by the boring moths associated with it in cooler parts of South-west Palearctis. The gardens, where not tilled for minor crops between the trees, are clad with the spiky grass, *Eragrostis cynosuroides*, and the annual herb, *Inula graveolens*. Dry banks (e.g., road embankments) are often overgrown with the bushes *Lycium barbarum*, *Prosopis stephaniiana* and *Alhagi*. In some gardens *Pluchea dioscorides* or *Sesbania aegyptiaca* are grown as a hedge. The usual sub-tropical fruits and vegetables are grown sporadically in the oasis, and various exotic trees, of little interest from the entomological viewpoint, are planted also, e.g., *Dalbergia sissoo*, *Albizzia lebbek*, *Acacia farnesiana*, *Eucalyptus* spp., etc. More interesting, especially for Lepidoptera, are the trees *Zizyphus spinachristi*, *Populus euphratica*, *Salix alba* and *aemophila*, and *Tamarix articulata*.

The general climate of this region is that of a hot subtropical desert, the latitude being about $30^{\circ} 30' N.$ Rainfall is slight (about 5", or between 114 and 200 mm., annually) and it comes only in the cooler months, between November and April; snow is unknown. From April

*Autumnal Lepidoptera in Kurdistan (*Ent. Rec.*, 49, 1937). Lepidoptera of a Bagdad Orchard (*id.*, 51, 1939). More Notes on Kurdish Lepidoptera (*id.*, 51, 1939). Mesopotamian Desert Lepidoptera (*Journ. Bombay N.H.S.*, 43, 1941). Two Visits to the Hammar Lake (*Ent. Rec.*, 56, 1944). A Year on a Tigris Island (ined. probably *Journ. Bombay N.H.S.*).

†The Butterflies and Moths of Iraq (*Dir.-Gl. of Agric. Bull.* 30, Bagdad, 1944).

to October very high temperatures occur daily, 110° F. being the usual mid-day shade temperature for three or four months in midsummer, with occasional peaks of 120° F. or more. In August and September rather oppressive humid south winds blow from the Persian Gulf; for the rest of the year a drier north-west wind prevails, though the lower temperatures of the winter months permit a high humidity, favourable for larval growth.

The following is an analysis into foodplant and other ecological groups of the Lepidoptera of the oasis; after demonstrating the heterogeneous, mosaic-like, composition of this fauna, the probable history and origins of its components can be discussed. The Orthoptera are also listed grouped into the ecofaunæ in which I observed them; as regards their probable history and origins, I make no remarks, but it is not hard to supply a hypothetical history, having due regard to their present ecology and the physical history of the oasis, as given below.

ANALYSIS.

GROUPS 1-15: LEPIDOPTERA.

(1) THE SALIX AND POPULUS FEEDERS.

These two tree genera characterise the primary river flora and fauna of the rivers issuing from the Turkish and Persian mountains southwards. Their insect fauna is very poorly represented in the Shatt el Arab oasis, the trees themselves being scarce, and probably planted rather than indigenous. Only the following Lepidoptera occur; they are mostly bivoltine:—

Smerinthus kindermanni, Led. (*Salix*) (Anatolian-Iranian).

Dicranura intermedia, Teich. (*Salix* and *Populus*) (Anatolian-Iranian).

Caradrina (?) pertinax, Staudinger (*Salix*) (Anatolian-Iranian).

Semasia euphraticana, Amsel (*Populus*) (Eastern Eremic).

(2) THE TAMARIX FEEDERS.

This tree genus is Eremic. *T. pentandra* and some other species belong to the same river flora as (1) above, but these species are very scarce on the Shatt el Arab; instead, one finds the Saharan tree imported planted, *T. articulata*. The moths accompanying the others do not seem to like this tree, on which, however, the following multivoltine species thrives:—

Hypoglaucitis benenotata, Warren (Saharan-Sindian).

(3) THE LYCIUM FEEDERS.

This bush is not only luxuriant in the oasis; one also sees stunted examples of it here and there in the desert. However, I have seen no signs on the latter of the larvae of the two moths which feed on the bush in the oasis. Probably in the last and other Pluvial periods of the Pleistocene the bush flourished in what is now the desert and enabled these moths to spread all over Eastern Egypt, Palestine, Arabia and Mesopotamia: both are univoltine autumnal; I have described their early stages already†, and they are:—

†*B. tenuisaria*: Early Stages of Palearctic Lepidoptera, VII (*Ent. Rec.*, 56, Nov. 1944). *C. deceptrix*: Early Stages of Palearctic Lepidoptera, IX (*Ent. Rec.*, 60, Jan. 1948, with Pl. V in Vol. 59, fig. 17).

Catamecia deceptrix, Staudinger (Eastern Eremic).

Boarmia tenuisaria, Staudinger (Eastern Eremic).

(4) THE ZIZYPHUS FEEDERS.

Zizyphus spina-christi is planted and respected for its shade; small urchins love it for its edible fruits; it is not very numerous in the oasis, but its size and wealth of foliage, where it grows, and the fact that it is on the fringes of, if not actually on, its native centre of origin are doubtless the reason for the comparative richness of its Lepidoptera. Some of these, e.g., *Nadiasa siva*, Lef., are polyphagous elsewhere though eating only *Zizyphus* at Basra; *P. lahayezi*, Ob., is similarly monophagous in the Shatt el Arab oasis, but has been reported as eating also *Rhus* in N. Africa. At least one of the *Tarucus* blues named below is known to eat other Rhamnaceae, i.e., *balkanicus* (on *Paliurus spina-christi* in Kurdistan and *Paliurus australis* in Cyprus); the oasis lepidopterous fauna of *Zizyphus* is multivoltine and may be listed thus:—

Tarucus theophrastus, Fab. (Saharan-Sindian).

Tarucus mediterraneae, B. Baker (Saharan-Sindian).

Tarucus balkanicus areshanus, B. Baker (Saharan-Sindian-Mediterranean).

Nadiasa siva, Lef. (Tropical; Indo-Malayan).

Pingasa lahayezi, Ob. (Paleo-Tropical).

(5) THE PHOENIX DACTYLIFERA FEEDERS.

Monophagous and even pestilential on the date palm (the characteristic Saharan-Sindian tree) are:—

Arenipes sabella, Hamps. (Saharan-Sindian).

Batrachedra amydraula, Meyr. (Saharan-Sindian).

Various *Ephestia* species, occurring in many parts of the world on all sorts of stored products, also attack date windfalls in the oasis gardens, see the Appendix to my 1944 list (Bagdad). All these are multivoltine.

(6) THE PROSOPIS FEEDERS.

Prosopis stephaniana is a common undershrub on dry banks in the oasis, but not all the moths monophagous on it elsewhere in Iraq accompany it here; in particular, *Chilena proxima*, Stgr., has not been noted here. This shrub, belonging to a genus characteristic rather of the New World deserts, is the only shrub or tree in Iraq at all closely related to the *Acacia* trees on which so many species of Lepidoptera feed in the drier parts of Africa, Arabia and India. The attendant Lepidoptera in the oasis are multivoltine and are:—

Chilades galba, Led. (Eastern Eremic).

Thermesia arefacta, Swinh. (Eastern Eremic).

Macaria syriacaria, Staudinger (Eastern Eremic).

(7) OTHER LEGUMINOSAE FEEDERS.

Two multivoltine migrant butterflies must be classed here, the former being resident, the latter absenting itself in midsummer:—

Lampides baeticus, L.

Colias croceus, Fourc.

(8) THE COMPOSITAE FEEDERS.

Since the local *Inula* dries up at midsummer and the Lepidoptera on these herbs seem incapable of a diapause, the only available foodplant for them seems to be the Tropical African shrub, *Pluchea dioscoridis*. On this feeds:—

Hadjina viscosa persicola, Strand.

(Varies greatly in size and colour according to season. Multi-voltine. Mediterranean.)

(To be continued.)

AN ATTEMPT TO EXPLAIN THE DEVELOPMENT OF PIERIS RAPAE AT PHILADELPHIA DURING THE YEAR 1932.

By O. QUERCI.

(Continued from p. 18.)

(36) August 31. There are in the meadow many thousand eggs, larvae, pupae and butterflies laying other eggs. The species would multiply in number indefinitely, but a severe control of the abundance occurs. Arid ground, scanty weeds, temp. 92° at noon, about 800 of vapour pressure. In the afternoon, during the total eclipse of the sun, the humidity of the air form drops of water on the land. Later the sun shines with great violence. Temp. rises up to 95°. Lightnings. Moisture of the ground evanesces. Smell of drying soil that ejects the larvae from their shelters (k). Before sunset a little rain falls and soon evaporates. Until midnight, though the temp. drops to 73°, blazes of fire seem to spring from the land. All the larvae that we rear at home, even those which exceptionally hatch in the night, die at once. Probably, in the meadow, most larvae die, but the pupae continue to produce adults until September 5th. (On September 6th the butterflies on the wing become suddenly scarce: A=20, B=1, C=20.)

(37) September 1-5. The destructive wave continues. Violent radiations, storms, temp. up to 97°. Many adults on the wing lay eggs that hatch in 3 days. The young larvae die; other thousand eggs are laid. (September 7-12: A=73, B=5, C=15. Most of these *rapae* are old and worn.) In the night it rains.

(38) September 6-10. The rain continues until the morning of the 6th. Temp. drops at min. 58°. The larvae hatching now survive (b). (September 13-17: A=50, C=12. The scarce adults on the wing from September 6th to 18th might be those from pupae formed by the end of August which have delayed 8 to 14 days to emerge; the others on the wing until the 17th are more or less old.)

(39) September 11-15. Humid ground, many weeds, strong S.R., feeble R.R., temp. max. 81°, min. 62° (b). (September 18-21: A=853, B=5, C=171, and many others.)

(40) September 16. Cloudy, rainy, temp. 75°. Larvae inactive (f).

(41) September 17-19. Scanty S.R., wet meadow, temp. 57° during the night. Some larvae collapse, but there are still many pupae in the meadow (c, d). (September 23-26: A=261, B=4, C=65.)

(42) September 20-21. Damp country, some weeds, temp. 85° (a). (September 27-28: bad weather.)

(43) September 22-23. Feeble S.R., temp. 79°. It is now 17 days since the R.R. are missing. It seems that a little amount of them are needed for insect-life. The larvae in our cages do not feed (c). On the 23rd the ground is dry. In the afternoon it rains a little, later both S.R. and R.R. are intense. Temp. suddenly rises to 88°, electrified air, smell of drying ground. At home the larvae become excited and all collapse. Massacre of larvae in the meadow (k). (September 29-30, fine weather, very scarce adults: A=12, B=2, C=6.)

(44) September 24-26. Feeble S.R., temp. 55° during the night. Perhaps no living larva is in the meadow. Eggs do not hatch, pupae fall into lethargy (c). (October 1-3: A=29, B=3, C=10; almost all old and worn.)

(45) September 27-28. Rainy, temp. 72° (d).

(46) September 29-30. Full sunshine, feeble S.R., temp. 78°. Perhaps some larvae hatch.

(47) October 1-3. Fine weather, a few adults fly (b). (October 9: A=17, B=1, C=17.)

(48) October 4-6. Heavy rains. Some larvae pupate in our warmed rooms but not, surely, in the field (c). (October 10-12: A=11, B=3, C=4; most are old).

(49) October 7-8. Muddy country, cold nights (d). Eggs and larvae die.

(50) October 9-14. Activity ends. Only pupae go over winter (c).

(To be continued with the data concerning the development in Africa and Europe.)

COLLECTING NOTES.

ANTS IN N. SCOTLAND.—The opportunity of three short holidays in N.W. Scotland during July 1947-1949 has enabled the addition of a few species to be made to the County or Vice-County lists.

The area chiefly travelled over includes Coigach, West Ross and Elphin and Stoer, West Sutherland. Part of the area includes relatively dry hills and banks of Torridon sandstone not subject to excessive water-logging and on the south facing slopes of these *Myrmica sulcinodis*, Nyl., may be found. This ant appears to occur in well defined areas under stones on the steeper parts of slopes where water cannot lie, notably on the hill behind Polbain, Coigach, West Ross*, on dry banks at Elphin and on the hill of Stoer, West Sutherland*. The winged sexes have been found in mid-July for two years running.

Myrmica scabrinodis, Nyl., is abundant under stones in the rough pasture behind Achiltibuie, and other parts of Coigach, West Ross*, but has so far not been found in West Sutherland. Dark forms of this ant are frequently to be met with. This species is also abundant near Garve, East Ross* and has been taken at Moy and Abernethy, Easter ness*.

Leptothorax acervorum, F., is widely distributed throughout the area and may be found both under stones and in the long dead trunks of trees exposed in peat bogs. The winged sexes have been taken at

1500 ft. on Ben More, Coigach. New records for this ant include Elphin and Stoer, West Sutherland*, and Garve, E. Ross*.

A single specimen, a dealated female, *Myrmica lobicornis*, Nyl., was taken in a sandy field at Garve, E. Ross, where also were found both *Acanthomyops niger* and *flavus*. These three species are not recorded for E. Ross in *British Ants*, 1927 edition.

The two most abundant and widely distributed ants in the area are *Myrmica rubra*, L., and *Formica fusca*, L. The latter is common throughout Ross and in West Sutherland*. *Formica rufa*, L., persists in the thin scattered birch thickets of Inverpolly, Loch Baddagyle and Drumrunie, W. Ross*. Well-established colonies are to be found, although Pines are completely absent and the flattened rounded nests are made up predominantly of birch twigs. Nests are well compacted with little moveable free material. This ant appears to survive only in the more remote of the scattered thickets of the area, i.e., those less accessible to sheep and cattle grazing and other disturbance.—C. A. COLLINGWOOD.

*After the counties named, indicates that these have been kindly confirmed as new records by Mr H. Donisthorpe.

CURRENT NOTES.

ENTOMOLOGICAL CONGRATULATIONS TO MR DONISTHORPE.—A meeting of the Society of British Ants and their Guests was held at the Natural History Museum, South Kensington, on March 14th, 1950, the chair being taken by *Formica Rufa*, the President.

After the Minutes of the last meeting had been read, *F. Sanguinea* said she must make her usual protest about the animals admitted to membership. *Dinarda Dentata* was present that evening, but only by violence to the English language could she be called a guest. No ant that she (*F. Sanguinea*) had ever met had the slightest desire to see *D. Dentata* in her nest. "The wretched creatures," declared *F. Sanguinea* warmly, "Pilfer our food and devour our eggs and even our larvae. The sooner we see the last of them at our meetings, the better!"

The Chairman said they understood *F. Sanguinea*'s views, even if they were not always expressed with proper scientific detachment; but it was human naturalists who decided what were, and what were not, British Myrmecophiles, and the Society had to abide by their decision.

The Minutes were then passed and signed, and applications for membership from the following were referred to the Membership Committee: *Drassus Troglodytes*, *Limosina Crassimana* and *Aphiochaeta Minor*.

The Chairman said the main business of the meeting was to record that on March 17th Mr Horace Donisthorpe would celebrate his eightieth birthday. They were all well aware that Mr Donisthorpe had done more for the science of myrmecology than any other man in the country, and it seemed fitting that the Society of British Ants and their Guests should forward their congratulations on the occasion of the forthcoming anniversary. (Hear, hear.) She accordingly proposed that such a message of congratulation be sent. (Applause.)

Lomechusa Strumosa said she had much pleasure in seconding the resolution. She had no desire to speak disrespectfully of the late Father Wasmann, a most zealous worker in the "myrmecophilous field," but if it were not for Mr Donisthorpe people might still think that she and her relatives were responsible for the production of pseudogynes in *Sanguinea* nests!

Ripersia Donisthorpei said she would like to associate the Coccidae with the resolution. Mr Donisthorpe had been the first to find her and place her upon the British list, and *Ripersia Formicarii* and *Pseudococcus Sphani* would say the same. Moreover, that very ornamental member of their family, *Orthoziola Vejdovskyi*, was first recorded for Britain by Mr Donisthorpe.

The Secretary, *Acanthomyops Niger*, said they all knew that Mr Donisthorpe had added scores of species to the list of British myrmecophilous fauna, a large number of them new to Science. She thought it was a pity that when a new name had to be found for the genus *Lasius* Messrs Morice and Durrant's suggestion of *Donisthorpea*, with *Niger* as the Type, was not generally adopted.

Leptothorax Interruptus remarked that they must not allow the Guests to have all the say. She would remind the meeting that her "pretty little species" was discovered by Mr Donisthorpe and Mr Crawley, and that the description, if she might say so with becoming modesty, was Mr Donisthorpe's own. (Laughter and applause.)

Anergates Atratus observed that her species, also, was first discovered in this country by Messrs Donisthorpe and Crawley, for she thought that the claim that Mr Dale had anticipated them in 1835 was very questionable indeed.

Myrmecina Graminicola said she was rather proud that Mr Donisthorpe had kept a community of her species in an artificial nest for twenty years—a world's record for an ant's nest, she believed.

Acanthomyops Fuliginosus recalled the experiments by which Mr Crawley and Mr Donisthorpe had demonstrated that her recently-fertilized females were temporary social parasites, their hosts being *A. Umbratus* and *A. Mixtus*.

Claviger Testaceus, speaking as the oldest Coleoptrous member of the Society, reminded the meeting that Mr Donisthorpe was a Coleopterist as well as a Myrmecologist, and that he had collected more than 3200 species himself. At the same time, he (*C. Testaceus*) would point out that not even Mr Donisthorpe had yet been able to work out the life history of *Claviger*! (Laughter and hear, hear.)

After further speeches, the resolution congratulating Mr Horace Donisthorpe upon attaining his eightieth birthday was carried with acclamation, and the meeting concluded with the singing of "For he's a jolly good fellow."

REPORT ON THE T. GREER AUCTION SALE.—The Auction Sale held on the 15th March 1950 at Messrs Debenham, Storr & Co. Ltd. at King Street, Covent Garden, W.C.2, was one of the most interesting for a long time, as many collectors were anxious to obtain series of Irish lepidoptera from the collection formed by the late T. Greer, Esq., of Co. Tyrone. The sale commenced with many interesting lots of *P. napi*, as single specimens, in pairs, or in lots of four, and many fetched good

prices, the highest being £2 7s 6d for a large female with most of its forewings clouded with black. Two orange-buff forms (Summer brood), both heavily marked, realised £2 2s. The *cardamines* were very fine, and many forms fetched high prices. Two gynandromorphs were sold for £7 10s and an ab. *williamsi* fetched £3 5s and was purchased by Harold B. Williams, K.C., after whom the form was named. An extraordinarily fine melanic variety of *V. io* was cheap at £6, but an outstanding variety of *V. cardui* was run up to £38, and a pearly-white *A. aglaia* reached the high figure of £41; both these rarities are now incorporated in the H. Douglas Bessemer Collection. The *aurinia* were good, as was to be expected, and small lots fetched reasonable prices, as did the many separate lots, in small series, of *icarus*, the best ones realising 50s, 42s, and prices in this neighbourhood. An gynandromorph fetched only 26s. The moths were rather disappointing, but a bred specimen of *bicolor*, from a larva taken by Donovan at Killarney in July 1934, was bid up to £15 10s and was bought by H. C. Huggins. The cabinets, being mostly odd sizes and in only fair condition, failed to reach the high prices that were bid last year.—L. HUGH NEWMAN, F.R.E.S.

CATALOGUE DES LEPIDOPTERES DE FRANCE ET DE BELGIQUE: L. LIOMME.—It is hoped soon to resume the publication of this important work, the manuscript of which is complete, but its publication has been interrupted by the much regretted death of its author, whose life work it was. The catalogue has been published in parts as convenient, and has appeared as far as *Ethmia*, and these published portions may be obtained from M., L. Le Charles, 22 Avenue des Gobelins, Paris Ve.

I have been asked to canvass new subscribers in this country, and I will be most obliged to receive a post card from those interested in this publication, which is of considerable use both to the lepidopterist whose interest is bounded by our shores, and to those whose interests go further afield. The improvement in facilities for foreign travel have brought about an increase in this latter group.

Prices both of the published parts and of the projected completion will be found very moderate.—S. N. A. JACOBS, 54 Hayes Lane, Bromley, Kent.

REVIEW.

COLLECTING BUTTERFLIES AND MOTHS. By Ian Harman. Published by Messrs Williams & Norgate Ltd., 36 Great Russell Street, W.C.1. 120 pp., 7 plates, text figures; price 7/6.

This little well-produced book will prove of great help to the young student with a love for Natural History. It is written in simple language such as the average student is well acquainted with. The chapters are well illustrated with drawings of apparatus, and there is excellent information on collecting, field work, breeding, handling, setting and the preservation of insects. The illustrations of insects in their surroundings form an excellent guide for identification purposes. This book is altogether a valuable and attractive work specially for the young student.—H. J. T.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted.—For the British Museum larval collection, larvae of Chrysomelid beetles, alive or preserved. Liberal exchange if required.—*Dr S. Maunder, British Museum (Natural History), Cromwell Road, London, S.W.7.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Anttopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; *Etudes les Mouches Parasites*, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

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For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.*

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SOME NOTES ON THE SHATT EL ARAB OASIS AND ITS INSECTS.

JL. -5, 1950

By E. P. WILTSHERE, F.R.E.S.

(Continued from page 40.)

HARVARD
UNIVERSITY CRUCIFERAE FEEDERS.

These seem to be multivoltine migrants, and possibly need constant reinforcing from the north:—

Pieris rapae, L. (Holarctic).

Hellula undalis, F.

Plutella maculipennis, Curtis.

The two latter occur in deserts in Iraq, at least in favourable seasons.

(10) THE GRAMINEAE FEEDERS.

This group is poorly represented in the oasis, and at least one (*loreyi*) of the three species is a well-known migrant; all three are multivoltine and known to be partially dependent on cereal crops, of which the oasis grows small patches.

Pelopidas thrax, Led. (Tropical: Ethiopian).

Leucania zaea, Dup. (Euroriental).

Leucania loreyi, Dup. (Tropical).

(11) THE CAPPARIS FEEDERS.

The following migratory butterflies feeding on caper are often seen in the desert as well as the oasis; they are multivoltine and inhabit the oasis for part of the year only:—

Glycestha aurota, F. (November to March) (Tropical).

Colotis fausta, Oliv. (July to March) (Tropical-Subtropical, Eastern Eremic).

(12) THE HELIOTROPE FEEDERS.

The following multivoltine migrant is perhaps more frequently seen in the deserts of Iraq, but also occurs now and then in this oasis:—

Utetheisa pulchella, L. (Tropical).

(13) SOME MISCELLANEOUS MONOPHAGOUS MOTHS.

The following multivoltine and migratory hawk-moths inhabit the oasis, feeding monophagously on the foodplant named below, though some eat alternatives elsewhere:—

Deilephila nerii, L. (*Nerium*) (Tropical).

Macroglossum stellatarum, L. (*Galium*) (Euroriental).

Hippotion celerio, L. (*Vitis*) (Tropical).

Theretra alecto cretica, Boisd. (*Vitis*) (Tropical).

(14) THE POLYPHAGOUS TREE AND SHRUB FEEDERS.

In Iraq these feed on most of the native trees and shrubs, usually avoiding the exotics. One of them (*P. anysa*) is a migrant, and invades the desert in early summer.

Nadiasa siva, Lef. (Tropical: Indian).

Pandesma anysa, Guen. (Tropical).

(15) THE POLYPHAGOUS LOW-PLANT FEEDERS.

This numerous group contains many migrants, marked (M) below; some of these oasis dwellers also inhabit or occasionally invade the desert, and these cases are marked (D) below. All are multivoltine. In cases of species with a marked preference for only a few unrelated genera of plants, the plant or plants favoured in the oasis is named.

Vanessa cardui, L. (M) (D) (*Althaea*, *Cynara*). (Tropical-Subtropical).

Zizeeria knysna karsandra, Moore (Tropical: the Indo-Malayan subspecies).

Celerio lineata livornica, Esp. (M) (D) (Tropical-Subtropical).

Agrotis segetum, Schiff. (?M) (D) (Euro-Siberian-Tropical).

Agrotis ypsilon, Rott. (M) (D) (Almost world-wide).

Scotogramma trifolii, Rott. (D) (Tropical-Holarctic).

Prodenia litura, F. (M) (D) (Tropical).

Spodoptera latibrosa, Led. (?M) (Tropical).

Laphygma exigua, Hubn. (M) (D) (Tropical-Subtropical).

Chloridea peltigera, Schiff. (M) (D) (Mediterranean).

Chloridea obsoleta, F. (M) (Almost world-wide).

Syngrapha circumflexa, L. (?M) (D) (Euroriental).

Phytometra ni, Hubn. (M) (D) (Euro-Siberian).

Sterrha ochroleucata, H.-S. (?Mediterranean).

Rhodometra sacraria, L. (M) (D) (Tropical-Subtropical).

(15) LEPIDOPTERA WITH UNCERTAIN FOODPLANT.

The following group of species inhabiting the oasis is ecologically more heterogeneous than (14), being composed of those whose foodplant, if not quite unknown, has at least not been ascertained in Iraq. Those marked (M) are migrants and those marked (D) inhabit or at least invade the desert as well as inhabiting the oasis. The figures in brackets indicate the number of broods annually, and the multivoltine species are marked (MV).

Precis orithya here, Lang. (Tropical) (MV).

Agrotis spinifera, Hubn. (?M) (D) (MV) (Tropical).

Agrotis herzogi, Rebel (D) (1) (Eremic).

Agrotis matritensis messaouda, Ob. (D) (1) (Eremic).

Agrotis lasserrei, Ob. (D) (1) (Pan-Eremic).

Metopoceras omar, Ob. (D) (1) (Pan-Eremic).

Metopoceras delicata, Staudinger (D) (1) (Eastern Eremic).

Catamecia minima, Swinh. (D) (?2) (Eremic: Saharan-Sindian).

Aryophora dentula, Led. (MV) (Eastern Eremic; only in gardens).

Catocala neonympha, Esp. (D) (1) (Eastern Eremic).

Grammodes geometrica, F. (MV) (Tropical-Subtropical).

Pericyma squalens, Led. (D) (MV) (East Mediterranean). (This was by an oversight omitted from my list (Bagdad 1944)).

Pericyma albidentaria, Freyer (D) (MV) (Pan-Eremic). (*Altagis* is the reported foodplant of this species elsewhere.)

Rivula sericealis tanitalis, Rebel (MV) (Euro-Siberian).

Plecoptera reflexa, Guen. (1) (Tropical-Indian).

Rhynchodontodes revolutalis, Z. (MV) (D) (Saharan-Sindian).

Rhynchodontodes (?) sp. n. (2).

Sumeria dipotamica, Tams (2) (?Eastern Eremic).

Celama turanica, Staudinger (MV) (Pan-Eremic).

Celama harouni, sp. n. (MV) (?Eastern Eremic).

Sterrha illustris, Brandt (MV) (Eastern Eremic).

(16) ORTHOPTERA.

(a) Garden Pests.

Grylotalpa grylotalpa, L.

(b) Halophile Species.

Thisoicetrus adspersus, Rdt.

At night in October on a thick growth of *Suaeda* on low waste ground subject to seepage and floods in early summer. This Pan-Eremic species has a discontinuous range: (Area 1) Baluchistan, Seistan, Arabia (Oman only), Mesopotamia, Aralo-Caspian plains, Palestine, Egypt, Cyprus. (Area 2) Algeria, Spanish Morocco, S.-E. Spain.

(c) Arbusticolous Species.

Anacridium aegyptium, L.

Adults were found exposed on *Lycium* (?semi-hibernating), rather sluggish, in November. A member of an essentially African genus, this species is known throughout the Mediterranean lands, reaching Persia in the east.

(d) Graminiculous Species.

The following were taken when active on sunny days during the winter months in date gardens in the spiky grass, *Eragrostis cynosuroides*:—

- (i) *Hilethera aiolopoides*, Uv. An Eremic species extending from the Punjab across South Persia and Arabia to the Sahara.
- (ii) *Duronella volucris*, Uv. Apparently endemic around the Shatt el Arab.
- (iii) *Hedotettix alienus*, Uv. Known from Hasa (East Arabia) and Bagdad. The genus is Indian.
- (iv) *Aiolopus*, sp. The genus is tropical and subtropical but the species cannot be named on account of taxonomic confusion.
- (v) *Acrida*, sp. indet. (nymph). (An African and Mediterranean genus.)
- (vi) *Ochrilidia*, sp. indet. (nymph). (An Eremian genus.)

PROBABLE HISTORY AND ORIGINS OF THE ABOVE LEPIDOPTERA.

Geologically and historically the oasis is comparatively recent in formation. Much, if not all, of its site was still under the sea in the earliest historical times, and all of it in pre-historic times. The three rivers, Euphrates, Tigris and Karun, have changed their courses several times and for a while had three separate mouths. The Euphrates once flowed close to Zubeir and reached the sea at Um Qasr; the Karun once turned south and reached the sea at Bandar Shapur; later it

turned south along the present bed of the Bahmanshir, much closer to the Shatt el Arab. Only since historical times therefore (and principally from a northern direction, as the riverbank oasis flora and fauna of the Euphrates and Tigris followed their delta southwards) have the present insect inhabitants of the Shatt el Arab oasis arrived there. The more migratory Lepidoptera, of course (i.e., groups 7, 9, 11, 12 and 13 above), may have arrived very recently from various points of the compass, and some of them do not survive a single year on the oasis, as has been shown. But the indigenous oasis insects, with which we are here especially concerned, can, if recent arrivals, only have come from the north and east, owing to the drier, less favourable terrain to the south and west in recent times. However, it is necessary to consider each group separately, and not to generalise about their history and origins.

Group 1 (on *Salix* and *Populus*) are a mere fraction of the riverbank fauna of the Turkish and Persian mountains (Taurus and Zagros Mountains); this fauna is far richer in Northern Iraq, West and South-west Persia, and even Central Iraq, than on the Shatt el Arab. It has clearly had difficulty in reaching the delta-oasis, partly owing to the increasing heat, drought, and length of the summer so far south, and partly owing to the lack or scarcity of the appropriate foodplant on the newly-emerged ground, most of which was occupied by man and cultivated before the natural climax of vegetation could grow up on it; most of its members have failed to arrive.

There is one apparent exception to the above generalisation regarding this group's history, namely, the Tortricid *S. euphratica*, known only elsewhere from the Jordan valley near Jericho. The other three species of the foodplant group are, remarkably, not known from the Jordan valley, though *Populus euphratica* is common there. This little moth, however, may yet be taken further north, and perhaps in the Zagros mountains, and it is probably premature to be positive that it is a more southerly, i.e., more Eremic, poplar-feeding element; nevertheless, on the present information, the two present localities of this species would appear to be linked rather across desiccated Arabia than by the river systems further north.

The absent members of the second group (on *Tamarix*) belong to the river-bank fauna of Mesopotamia and Turkish and Persian foothills, and their absence from the Shatt el Arab oasis can be explained in the same way as can that of the missing species of the *Salix* and *Populus* moths. The unique representative in the oasis of the second group may have immigrated or have been imported with its foodplant, which is not indigenous in Southern Iraq..

The history of the third group (on *Lycium*) may well be similar to that of the first group, but these moths must also have been numerous in the valleys of the lost rivers of Arabia before they dried up, including the Wadi el Batin, which flowed north-eastwards to Zubeir (just west of Basra); and if, as is possible, the Euphrates estuarial oasis began to form at Zubeir before this valley became completely desiccated, the group arrived from the Batin as soon if not sooner than from further north (where, in any case, it has not yet been observed), and is one of the most ancient components of the fauna.

The fourth group (on *Zizyphus*) probably arrived from the East as soon as land connections were formed, for there is still a scrub *Zizyphetum* dependent on rainfall, not on oasis conditions, in the Zagros foot-hills up to 4000 ft., and also along the north-east shores of the Persian Gulf (e.g. Bushire). The tree had, however, probably already entered the Tigris and Euphrates riverain flora further north before the site of the oasis rose from the sea, and if so the attendant insects entered the oasis also from the north. The possibility also exists that the tree was a former inhabitant of the Batin valley, and may have entered the Shatt el Arab, as the third group probably did, from the West.

Group 5 (on date-palm) must have entered the oasis by man's activity; the tree was already being cultivated in Mesopotamia from the earliest historical, if not pre-historical times, i.e., before the oasis-site rose out of the sea. Before its cultivation, these insects presumably attended the wild *Phoenix* palm, and I think it likely that this was indigenous in Southern Iraq, further north.

Group 6 (on *Prosopis*) probably had a history like that suggested for Group 4, and entered the oasis from several points of the compass.

Group 8 (on *Pluchea*) is probably a relict of the Tertiary Mediterranean Tropical fauna, and it probably reached the oasis with the third and fourth groups.

The non-migratory members of groups 14 and 15 are mostly Tropical species. They probably arrived in the oasis in the same way as group 4.

The movements suggested above as having taken place all occurred in post-Pleistocene times. The general history of these ecological groups in the Middle East during the Pleistocene and earlier periods is a far bigger question and cannot be dealt with here.

PROLONGED DURATION OF THE PUPAL STAGE IN CERTAIN MOTHS.

By J. NEWTON.

It is well known that certain species of moths exist longer than one year in the pupal stage. In my experience of breeding moths I have met with two such examples. In 1937 I reared a number of *Cerura vinula* to the pupal stage and moths emerged from these in 1938, 1939, and 1940.

In May 1946 I received a nest of larvae of *Eriogaster lanestris* from a correspondent in N. Ireland and these spun cocoons in June-July. Six moths only emerged in March 1947 (one ♀ and five ♂♂); eight in February-March 1948 (three ♀♀ and five ♂♂); none in 1949, and this year three ♀♀ and five ♂♂ emerged in early March, also one ♀ and one ♂ on April 7th. I still have some pupae and I am wondering if these will go a fifth year and produce moths.

All my breeding is done out of doors. It is interesting to note that, with the exception of the two *E. lanestris* which have appeared this April, all others have eventually emerged at the same period (last week in February and first week in March) each year whatever the weather.

appeared to be before or after. A reason, which has been given before, to account for pupae going over more than one year is that it carries the species over a period of unusual conditions and so serves to protect and perpetuate the race, but it is difficult to see why it is necessary for a species in this variable climate of ours to stay in the pupal state for a period of four or more years.

Do pairings take place between, say, a male which has been in the pupal state for as many as four years and a female which has had only one year in the pupal stage? Obviously, theoretically, there are several possible combinations of moths which have spent different periods of time in the pupal stage, which would result in some very complex relationships between the resulting broods.

It would be of particular interest if any readers could supply evidence as to what extent this prolonging of the pupal stage actually occurs in the wild state.

11 Orleaze Close, Tetbury, Glos.

AN ATTEMPT TO EXPLAIN THE DEVELOPMENT OF PIERIS RAPAE AT PHILADELPHIA DURING THE YEAR 1932.

By O. QUERCI.

(Continued from page 41.)

Signs: Temp.=Maximum temperature. S.R.=Solar rays. R.R.=Radiation reflected from the ground. Mort.=Mortality of larvae. A=Number of specimens taken by us in the meadow. B=Collecting days. C=Daily average.

(1) May 15-20. Pupae survived to winter produce adults. Females mate at once and lay gradually eggs during about a week. Eggs hatch in 4 or 5 days (b).

(2) May 21-25. On the 21st it rains. Humid ground, weeds, sunshine, feeble R.R. as most S.R. are absorbed both by moisture and plants. Temp. 76°. A few pupae formed (b). After the 25th we see no fresh *rapae* on the wing until the emergence of those of the second brood on June 2nd.

(3) May 26. After 4 sunny days the land dries. Scarce weeds. A few more or less old adults continue to fly laying eggs. Intense S.R. strongly reflected from the arid and hot soil. Those larvae, which are not sheltered by weeds, are killed by the radiant energy rising from the soil. Temp. 87° (i, j).

(4) May 27. Unsettled weather in the morning, temp. 70° to 80°. The larvae that have survived and those hatching now are not injured (l). In the afternoon the temp. rises up to 87°, however it rains. Very active larvae; only a few pupae are formed (a) because most caterpillars died.

(5) May 28-31. Moist ground, intense S.R., feeble R.R., temp. 72°. The climate is suitable, but most larvae can not get food owing to the scarcity of weeds (e, b). Only a few larvae form pupae; many others spread all over the country. (On June 2nd we see a few fresh *rapae*. From the 3rd to the 7th we take: A=47, B=5, C=9. Scarcity due to drouth.)

(6) June 1-4. Aridity increases, temp. 83°. Until the S.R. are absorbed by the remaining moisture (so that the soil does not become hot) the larvae resist (e) and the mature ones form pupae (a). In the afternoon of the 4th: thunderstorm and drizzle. Afterwards: violent S.R. and R.R., temp. 86°. The air is electrified; peculiar smell of drying ground. High mortality of larvae of any size (k). Pupae not injured. (After a week the butterflies are scarce: June 8-11: A=53, B=4, C=13).

(7) June 5. Strong S.R. and R.R., temp. 90°. The larvae that might have survived, and those hatching now, should die if they are not in sheltered places (i, j). Adults on the wing lay hundred eggs, though they are in a small number.

(8) June 6. Further massacre of larvae lacking of shelter (i, j). Looking at the data at Table I, one sees that the smell of drying ground did not occur because when rain ended it was night). June 12-14: A=13, B=2, C=7. On the 13th it was cloudy and we did not catch.)

(9) June 7-11. Moderate radiations, temp. 73° to 78°, but scanty weeds (b, e). Some larvae, in moist and still verdant places, pupate. Others resist starvation. In spite of the drouth and harmful climate on the past days, we see some larvae in the platband around the fountains of the monument of General Washington at the Parkway, where there are some weeds. (June 15-17: several adults are on the wing, A=123, B=3, C=41).

(10) June 12-14. Cloudy, rainy, temp. max. 70°, min. 60°. Those larvae in the meadow, that had become feeble from long starvation, collapse (d). The others are little active (b). (June 18-21: A=49, B=4, C=12).

(11) June 15-17. Heavy rains, wind 30 miles per hour in the afternoon of the 15th. Further destruction of larvae (m). Eggs and pupae little injured. (June 22-24: A=27, B=3, C=9).

(12) June 18-21. The torrential rains of June 15th penetrated scantily into the ground that now is drying. Feeble S.R., temp. 60° during the nights. If in the meadow there are still some starving larvae; they must die (d). (June 25-28: A=24, B=4, C=6).

(13) June 22. Intense S.R. and R.R., temp. 90°, lack of food-plants and shelters. Perhaps no larvae remain alive in the not shaded land in which we collect (i). Adults lay eggs. (June 29-30: A=14, B=2, C=7).

(14) June 23-25. Temp. drops: min. 60°. Larvae hatching now survive owing to plenty of sunshine (e), as one sees at Table I.

(15) June 26. Violent waves of radiations, temp. 92°, scanty rain followed by intense S.R., electrified air, smell of drying ground (k). At the Park Way we see no *rapae*. We take 5 specimens in a damp and shaded locality, near Germantown, where we go and get plants having at home some eggs. Many eggs, not yet hatched, are also in the meadow where we daily collect.

(16) June 27-29. It rains during the night. Our collecting place becomes verdant. After the rain the solar radiation is intense, but the humidity absorbs it. Temp. 86°. Active larvae (a). (July 1-3: A=26, B=3, C=9; July 5: A=14, B=1, C=14. Most specimens are worn. Likely they emerged in some damp and shaded localities: like that of Germantown, and came at the Park Way where the field in flourished).

(17) June 30. Moisture, temp. 89°, many flowering weeds. Larvae active (a).

(To be continued.)

CURRENT NOTES.

WHAT a remarkable advance the South London Entomological Society has made since its removal from South London to Burlington House, Piccadilly. Its new programme of fixtures for the half-yearly period for Field Meetings shows no falling off of the old enthusiasm of years ago. Meetings are planned in the Thames Valley, from Kent approaches in the east to the New Forest in the west, Surrey with its broad open spaces and lovely lanes is visited and Sussex with wooded hills, and the larger but less frequent open spaces of the northern approaches to the metropolis.

THE ordinary meetings of the Society are held twice each month, one meeting is devoted to exhibits and short notes each month and the other to papers, lectures, with lantern if needed and any special exhibit from the outside on Natural History Subjects. Small exhibits may be shown at such meetings if opportunity and time permits.

ONE evening a year is devoted for a special exhibition, which is usually attended by country members and friends from many of the country societies.

DURING the many years of its existence the Society members have got together a collection of Lepidoptera both macro and micro for reference to which other special collections of various sections have been added. Similarly a very complete collection of Coleoptera is also possessed for reference purposes.

IT is the aim of the Society to get together typical collections of other orders. Already a good reference collection of Odonata (dragonflies) exists.

To attain such results the Society must have had a succession of able officials able and willing to give a large amount of energy and time as well as love of the rendering of information to the enquirer in his search for a fuller knowledge of the ways of nature.

Zts. WIEN ENT. GES., LXI (35th year), pp. 17-20 (iv, 1950), contains a paper by Karl Burmann on [*Caloptilia*=] "*Gracilaria populetorum*, Z.", which he finds widely distributed in N. Tyrol, the larva in rolled leaves of *Betula verrucosa*, in two broods. He gives brief characters of 13 colour-forms and describes at more length three new aberrations, *obscura* (p. 19), *pallida* (p. 19), and *brunnea* (p. 20).

In the same part (pp. 3-15) H. Franz has an article on the study of Geographical Races and its meaning for the solution of zoogeographical and phylogenetic problems.—T. BAINBRIGGE FLETCHER.

MITT. SCHWEIZ. ENT. GES., XXII, Heft 4 (xii, 1949), includes (pp. 411-421, 4 figs.) a very interesting note by Paul Martin on the biology of *Nymphula nymphaeata*, L. (*Pyralidina*). The illustrations are excellent.—T. BAINBRIGGE FLETCHER.

THE SIXTH CONGRESS OF BRITISH ENTOMOLOGISTS.—Since the leaflet was drafted it has been decided that the main (mid-Congress) field meeting *will* be at Dovedale, but that a pre-Congress visit to Sherwood Forest will be made on the Friday by those able to get to Nottingham early on that day.—Capt. E. R. GOFFE, Organising Secretary, "Winton Cottage," King's Somborne, Hants., April 23rd, 1950.

A CRITICISM.—I was interested to read Mr Sevastopulo's comments on my comparison of the larvae of *Papilio demoleus* and *demodocus* in the issue of the *Entomologist's Record* for March, but I feel that I cannot let it pass without retaliation. In paragraph two he states that he cannot agree with me, and, though I'm sure he does not mean it, he appears to imply that I am wrong and colour blind to boot.

I feel that it would only be fair to both science and myself to point out that my observations were made in Ceylon and Sierra Leone, which are over 1000 and 3000 miles respectively from his Indian and African localities for these two species. If some degree of geographical variation cannot be expected to be evident at either end of these great distances, then let me burn my collection and take up stamps. His opinion would have been more valuable had he written with this in view (i.e. geographical variation not the combustion of my collection!).

My observations were compiled from numerous notes and drawings made on the spot from living material collected at various seasons, from various pabula and at various altitudes in order that the fullest range of colour variation might be observed in both localities. My colour vision is excellent.—H. M. DARLOW, Surgeon Lieutenant Commander, R.N., Royal Naval Hospital, Chatham, 12/4/50.

In the early months of a new year one always looks forward to the annual reports of the societies. Most of the magazines, too, summarise their work of the year and many authors choose this period for the publication of their special line of study.

Of the latter type is a quite recently published report in South Africa by the Entomological Division of Entomology, a history of the struggle against the Opuntia cactus originally introduced from America. This admirable report, "The Biological Control of the Prickly Pear in South Africa," is by W. Petty, Ph.D., Chief Entomologist of the Entomological Division.

This Report is not only a faithful history as I followed in the personal letters from my friend, Syned Taylor, who was carrying out the details of the control work, and the obstacles which had to be overcome.

The story is one of great success at first threatened with complete frustration. How success was at last achieved is a long and intricate story and we must leave it to the reader to read the actual report from the words of the author.

The Botanical information given on the cactus (Opuntia), with 3 coloured plates, is most useful. With the article are excellent illustrations of the area attacked both before and after clearance.

The first plate is most useful, as it gives figures of the various insects in imago and the larval and ova state.

Among these, of course, are native South African species which in turn attacked the imported species, another complex situation in nature's working.

The author does not fail to record all statistical matter in the work.

154 pp., 3 coloured plates, text figures and 28 diagrams.

Studies on Swedish Stoneflies (Plecoptera), by Per Brinck. A volume of 250 pp. quarto, in English, with about 60 illustrations, mostly devoted to the habitat and distribution.

Boletin de Entomologia Venezolana, Vol. VII, 1948, 1-2, 3-4, published in 1949. A long article, "Documents pour servir à l'étude des Sphingidae du Venezuela," is illustrated with several figures of new species. Dr Walter Forster, of Munich, writes on the Hesperiidae, with two plates showing upper and undersides.

Boletin Medico, by Caracas Venezuela. The 3 numbers of Vol. I have appeared at long intervals; 130 pp.

AMONG the Reports completed of Annual Magazines, we have received the *Pan Pacific Entomologist*, a magazine dealing with the hitherto neglected orders.

Of the *Russian Entomological Journal* we have received part 3-4 of Vol. XXIX (1947) and part 1-2 of Vol. XXX (1948). They are of 140 and 190 pp. respectively and show a good number of illustrations and diagrams. These illustrations show that the text is very interesting. If only each article had a short footnote in English, French, etc., it would add largely to scientific knowledge.

REVIEW.

THE PROCEEDINGS AND TRANSACTIONS OF THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, 1948-49. 220 pp., 11 plates, including 2 portraits and 4 coloured plates. Price, 25 shillings. Published at the Society's Room, Burlington House, Piccadilly, London, W.1.

The present number is, as usual, an excellent one in every respect, a happy combination of authors and editor, artist and printer. The Proceedings section opens with the portrait of Hugh Main, B.Sc., F.Z.S., F.R.E.S., and J. H. Adkin, who passed away during the period. This reminds one of the large number of portraits the Society possesses. The Record of the Annual Exhibition comes next with 2 plates, containing figures of the more striking aberrations exhibited, including a number of *Arctia caja*.

The abstract of Proceedings gives records of meetings, short reports of affiliated gatherings such as the Congress of Entomology at Stockholm and the Annual Meeting of the South Eastern Union. The field meetings are still as strongly kept up as well as during the whole of the past 50 years. The most valuable meeting in the winter season,

the Annual Exhibition, still attracts the latest acquired varieties from the whole of Great Britain. Even the report of the Presidential Address is not omitted as in the proceedings of some societies. The 2 plates attached to this Report figure about 20 striking rare or new forms.

The Transactions are pp. 50 to 168 and have 7 plates, of which 4 are beautifully coloured, the work of Messrs Siviter-Smith. H. A. Leeds contributes a memoir on the aberration shown by the three common Satyrid butterflies—*Maniola tithonus*, *M. jurtina* and *Coenonympha pamphilus*. Illustrated on three coloured plates is *M. tithonus*, *M. jurtina* and 21 *C. pamphilus*, one of the most useful contributions of a mass group of a family recorded, all coloured. "Notes on some rare Dragonflies," by C. G. Pinniger, F.R.E.S., with one plate; "Summary of the paper read to the South London Entomological Society"; "Notes on Pseudoscorpions," by E. E. Syms, F.Z.S., F.R.E.S.; "The preservation of Beetle Larvae," notes by F. A. T. Duffy, F.R.E.S.; "The Migrating Lepidoptera of Holland compared with those of Great Britain," by B. J. Lempke; "Retarded Emergence in Cynipidae," by M. Niblett, F.R.E.S.

For a considerable period a section of the Society have taken interest in the study of Microlepidoptera. S. N. A. Jacobs has submitted a memoir, "British Oecophoridae and allied genera," with a coloured plate of over 30 figures.

Our correspondent of many years has sent us a neatly produced pamphlet, "Notes on Lepidoptera on the Eastern Cape Province (Part I)." It has two plates: (1) with 96 figures of the smaller Lepidoptera; (2) 13 figures of larger species reduced in size. Introduces us to a quite new area.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Stviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 15.*

Wanted.—For the British Museum larval collection, larvae of Chrysomelid beetles, alive or preserved. Liberal exchange if required.—*Dr S. Maults, British Museum (Natural History), Cromwell Road, London, S.W.7.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antlopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; *Etudes les Mouches Parasites*, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

For Disposal—A set collection of 885 specimens of Pyralids, including Galleridae, Chilidae, Crambidae, Phycidae and Pterophoridae. Am quite prepared to almost give them away but would exchange for British Lepidoptera of other families. **Wanted**—British Bombyces, Noctuids and Geometrids, etc., in exchange for specimens of the same families—Desiderata lists exchanged.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lympington, Hants.*

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.*

Duplicates—*Croceus*, *Helice*, **Hyperanthus* and var. *arete*, and intermediate forms **Egeria*, **C. album*, **atalanta*, **io*, **selene*, *Euphyrosyne*, **megeara* (* = bred). **Desiderata**—*Rhopalocera* only, especially ova, larvae or pupae.—*A. J. Exeter, Fernlea, Blackberry Lane, Four Marks, near Alton.*

Duplicates.—Irish : Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). **Desiderata**.—Numerous to renew.—*L. H. Bonaparte Wyse, Corballymore, Co. Waterford.*

For Sale—Tutt's "Hints for the Field Lepidopterist," 3 volumes.—*W. J. Watts, 42 Bramerton Road, Beckenham, Kent.*

Communications received :—Thomas Greer, Fergus J. O'Rourke, O. Querci, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopulo, D. Fearneough, R. J. R. Leveitt, E. C. S. Blathwayt, E. P. Wilshire, A. E. Wright.

All Communications should be addressed to the Acting Editor, Hy. J. TURNER, "Latemar," 25 West Drive, Cheam, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: June 7th, July 5th, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: May 24th, June 14th. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

AUG. 11 1950

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FIELD NOTES FROM ANATOLIA.

AUG. 11, 1950 By MALCOLM BURR, D.Sc., F.R.E.S.

Plate III.

VII. GÖNÜK AND KEMER.

A couple of hours in the train brought us to Burdur, past the shores of a long lake in a narrow valley. From here we took the bus to the coast, a distance of 134 kilometres, to the picturesque little port of Antalya.

The thing that interested me most here was the view across the bay to a range of not very lofty, but grim and austere, mountains, a spur of the Taurus, which here juts out to sea. Davis had been here two years ago and found a most interesting flora, that had never been glaciated and so we looked hopefully to good collecting, each in his own line. Our destination was the end spur, called Tahtali Dagh, across the bay. By land, it is a two days' ride through uninhabited country, so we hired a motor boat and set off early on July 7th.

About 8.30 we landed on the beach at a spot marked on the map, called Gönük. I could not make out why it had a name, but I suppose every stream is called something, and for some months in the year a little torrent runs out to sea here, having cut a gorge through the mountains. The beach is a stretch of gravel, with piles of rounded big stones at the water line, beyond which is a narrow strip of rather boggy land, covered with *Vitex agnus Christi* and oleander, with tamarisk, a sticky, yellow *Ononis*, and *Periploca*, which looks as though it would make a nice salad. This strip was only a few yards wide and beyond it the forest began, mainly the bright green of *Pinus brutia*, varied with myrtle, Cypress, *Erica vorticillaria*, and the eastern *Arbutus andrachne*, this looking strange with its smooth red trunks, for the bark was peeled off. The general effect of the vegetation is pleasing, especially along the shore, with the lilac and mauve or blue *Vitex* and the blaze of the oleanders.

But insect life did not obtrude itself upon our notice. In the forest itself I saw a *Papilio podalirius* cruise by. There was a little bird life. I flushed a nightjar and saw a couple of jays and some turtle doves. Out on the coastal strip collecting was easier. The only butterfly I saw was *V. cardui*, of which there were several, settling on the *Vitex*. It has always seemed strange to me that this shrub, with its long spikes of coloured flowers, is not more attractive to insects. The *V. cardui* were restless, fast on the wing, and some in fair condition, but I saw no indication of definite migration.

Of Orthoptera there were several species. Not a single Tettigoniid did I see. Of Mantids, a single larval *Ameles*, no doubt *heldreichi*, and the egg-case of *Mantis religiosa*. Among grasshoppers, there were several species of *Oedipodidae*, but I found only the routine species, *Oedipoda miniata*, a single *O. caerulescens*, a few *Acrotylus* and some *Sphingonotus*, almost certainly *S. caerulans*. There were fair numbers

of a *Calliptamus*, probably *italicus*. In one small boggy patch I found in my net two more interesting species. One was *Pyrgomorpha rosea*, the single member of an Ethiopian genus that overflows into the extreme south of Europe and therefore analogous with the *Vitex*, and some very small larvae of a cricket. These were in the first instar, and so soft that they were crushed by the impact of the net in sweeping, but I feel pretty sure that they were *Mogoplistus*, as the locality is characteristic for this curious little cricket, which never seems to occur far from the Mediterranean shore line and its presence may be taken as evidence that the spot was at one time part of that coast.

Of earwigs no trace, but I got a single cockroach, a female *Hololampra*, which I found by rummaging for a long time among the pine needles. I have always been surprised not to find more Blattids in Turkey.

There was not great evidence of other insect life. A few small beetles among the pine needles, some Hymenoptera and a considerable number of Asilids. These are much more prominent in Turkey than in other countries that I have visited and thrust themselves more upon the notice. But although there were plenty about and they were conspicuous, I did not find a single specimen with its prey. In other parts of the country, I have found them with a honey bee, with a heavy female *Oedipoda* and with a hornet. As both bees, and above all hornets, are capable of giving a good account of themselves, it looks as though the Asilids employ some form of poison.

Davis and his Turkish comrades had gone for a walk up the gorge, but without great result. He brought back, however, an *Orchomus*. This is a Pamphagid grasshopper, also overflowed from Africa into Europe, where isolation has produced its results. On Boz Dagh two years ago he found a new species and this specimen will probably turn out to be different.

In the afternoon we struggled back to our boat, for the breeze had freshened and she had to lie off, and after half an hour's run we made another beach, landing at what looked like another uninhabited spot.

We were wrong, however, for the place is also marked on the map and has a definite existence. It is called Kemer and is a village, and a prosperous one too, but adhering to the ancient tradition of building villages a little way inland from the coast to avoid the raids of pirates. The local authorities had been advised of our arrival and we were met by the officials, who entertained us to the utmost of their abilities.

As we scrambled up the beach, I was glad to be welcomed by a flock of beautiful bee-eaters and, while waiting for our kit to be landed, caught a few beetles scampering about the low sand dunes, with a small *Myrmecaleo* and a huge handsome *Scolia*. I saw another *Pyrgomorpha*. *Oedipoda miniata* and *Acrotylus insubricus* were there too.

Kemer is the name of a torrent that comes tumbling down its narrow gorge, flattening out at the mouth into an estuary which is cultivated by the villagers. The vegetation consists mainly of scattered *Pinus brutia* and *Rhus*, the Burning Bush, on the flats, becoming dominant on the flanks, with the carob, *Ceratonia*, with its great pods, myrtle, and St John's Wort climbing up the banks and fences. As we

were riding along, Davis' quick eye spotted a Tettigonid on a shrub. I pounced and found a small *Pholidoptera*. This was interesting, as there can be little doubt that it is the new species he discovered on the top of the mountain of Tahtali Dagh two years ago, which has been described by Uvaroff as *Ph. tahtalica*. That gives it a vertical range of about 2000 metres.

On the flat ground there is probably pretty good collecting to be done and I would have liked to have stopped a week or more at this interesting spot, but we had to push on up the mountain to carry out a carefully prepared plan, in which everything, down to the animal transport, guides and number of loaves, must be organised in advance.

Presently we entered the Kemer gorge itself. This is very narrow, with bare room for the torrent and the path, which has considerable importance as the roadway for the traffic of donkeys bringing down massive timbers from the cedar forest above. Cicadas were the most prominent insects; there were several Odonata, a white admiral, and here and there a *Calliptamus* and *Oed. miniata*.

Unfortunately, some poison that I had swallowed was by now working its wicked way, and the rest of this extraordinarily interesting trip was an exhausting torment for a man in an exhausted pathological condition. For collecting, it was virgin ground, of unusual promise, but I could do practically nothing. Late in the afternoon, I tottered into the hamlet of Kuzdere, at an altitude of about 900 metres, where I had the consolation of meeting the hospitality of the Turkish peasant at its best.

(*To be continued.*)

NOTE FROM FORT BEAUFORT, C.P.

Port St Johns, on the mouth of the Umzimvubu River, in Pondo-land, and not far from the Natal border, is a lovely little place, and situated in the most beautiful scenery I have yet seen in this country. There are great stretches of indigenous forest which reach right down to the edge of the sea. It is a very rich area botanically, and, as such, a paradise for both botanist and entomologist. I collected a number of moths at light which I posted to you last week and hope will reach you in good order. The parcel also contains a few male specimens of an Amatid reared from larvae obtained in the Grahamstown (Albany) district, near a little place called Carlisle Bridge, some 24 miles N.W. of Grahamstown. The larva feeds on mesembryanthemums, and the female moth has vestigial wings. Dr Janse has named it for me as *Amata polydamon* Cram. When I described it as an Amatid, I should rather have said Syntomid.

I am now busy writing up my notes on the parthenogenetic *Mesocelis* for publication. The male has not yet been found, and I have now reared four generations without a male, while a high percentage of fertility in the eggs continues. I have two papers in the press at the

moment; one on *Phiala patagiata*, which is being published by the Department, and the other notes on miscellaneous Lepidoptera which is to appear in the journal of our S.A. Ent. Society.

We have had a long spell of drought, and conditions have been very bad, cattle and sheep dying in thousands, and crops generally being a complete failure. We are very short of water. However, the last few days have brought welcome rains which look like continuing. If they do, the position should be relieved. Owing to the lack of vegetation, there have been few Lepidoptera about this summer as yet. At Port St Johns, where there is an abundant rainfall, it was very different.

J. S. TAYLOR.

17th November 1949.

TWO NEW SPECIES OF ANTS FROM TURKEY.

By HORACE DONISTHORPE, F.Z.S., F.R.E.S., etc.

Sub-family: *Myrmicinae*.

Tribe: *Pheidolini*.

Goniomma burri, sp. n.

♀ Light-brownish yellow, darker in parts, antennae and legs pale yellow; sparsely clothed with yellow outstanding hairs.

Head subquadrate, cheeks straight, posterior angles rounded, posterior border and narrowly marginal, longitudinally striate on top; *mandibles* triangular, longitudinally striate, masticatory border armed with 7 and 8 teeth, moderate, black, apical one sharp, the one next to it shorter than the one before it; *clypeus* triangular, longitudinally striate in centre, anterior border excised in middle, posterior border extending between insertion of antennae; *frontal area* small, but distinct, depressed, longitudinally striate; *frontal carinae* narrow, raised; *antennal foveae* large, deep, bordered in front by posterior border of clypeus; *ocelli* moderate, distinct; *antennae* 12-jointed, *scape* slightly curved posteriorly, thickened anteriorly, *funiculus* with 1st joint slightly broader at apex, and equal in length to the 2nd and 3rd taken together, *club* 4-jointed, pointed and longer than those preceding it. *Thorax* large, outstanding; *pronotum* transverse, with a neck margined at sides in front, transversely striate; *mesonotum* convex, ample smooth and shining, slightly overlapping pronotum; *praescutellum* narrow in middle, broad at sides, smooth and shining; *suture* between praescutellum and scutellum longitudinally striate; *scutellum*, disc convex, transverse, rounded and projecting, smooth and shining; *metanotum* transverse, narrow; *epinatum* large, transversely striate, armed with two large, sharp, strong spines, slightly projecting outwards and downwards, spaces between the spines slightly hollowed out. *Petiole* with a strong and rather long pedicel, node bluntly pointed above; *post-petiole* rounded at sides and above, broader than node of petiole, smooth

and shining; *gaster* somewhat voluminous, bluntly pointed at apex, smooth and shining, first segment large, about as long as the rest of the gaster, sides rounded, broadest about middle. *Wings* iridescent, *reins* and *pterostigma* pale-brownish yellow, a *discoidal cell*, two closed *cubital cells* and closed *radial cell* present. *Long.*, 7.5 m.

Described from one winged and two dealated females.

West Turkey: Black Sea Coast, Hopa (C. Kosswig).

Named in honour of my friend Dr Malcolm Burr, through whose kind agency a number of Turkish ants have been sent to us.

Sub-family: *Formicinae*.

Tribe: *Camponotini*.

Camponotus (*Orthonotomyrmex*.)

♀ Head, thorax, petiole, antennae and legs rather bright red, gaster black with posterior margins of segments yellowish, shining, clothed with very sparse short outstanding yellow hairs.

Head quadrate, cheeks and posterior angles rounded, posterior border excised beneath in centre to receive neck; *mandibles* triangular, rather short, longitudinally striate, masticatory border armed with 5 or 6 rather short teeth, the apical one being long and pointed; *clypeus* quadrate, not very convex, somewhat faintly carinate in middle, anterior border excised in centre, posterior border slightly excised in centre; *frontal area* small and not very distinct; *frontal carinae* narrow, sharp, raised, converging in front and behind; *eyes* rather large, oblong, situated a little behind centre of sides of head; *antennae* 12-jointed, *scape* curved at apex, extending a little beyond posterior border of head, *funiculus* filiform, 1st joint longer than 2nd, last joint pointed, as long as the two preceding taken together. *Thorax* longer than broad, broadest across pronotum, furnished with a neck; *pronotum* large, transverse, convex, disc and sides rounded, neck and sides narrowly margined, posterior border rounded, embracing mesonotum; *mesonotum* slightly transverse, convex, considerably narrower than pronotum; *suture* between mesonotum and epinotum deep, sides of epinotum and metathorax finely longitudinally striate; *epinotum* prominent, projecting, dorsal surface flat above with posterior angles rounded but somewhat projecting, declivity rather abrupt and slightly hollowed out. *Scutellum* high round, upper surface narrow, anterior surface round, *Scape* high round, upper surface narrow, anterior surface round, on disc. *Long.* ?.

♂ Colour, structure, etc., as in ♀; legs and antennae a little longer in proportion, the declivity of the epinotum slightly more hollowed out. *Long.* ?.

Described from two soldiers and two workers, West Turkey, Erbeyli, June 14th, 1947 (C. Kosswig).

Named in honour of Professor Kosswig of Istanbul, who is the captor of nearly all the ants sent to us from Turkey.

SIXTH CONGRESS OF BRITISH ENTOMOLOGISTS.

NOTTINGHAM, JULY 7-10, 1950.

The programme for this Congress has now been completed; it is comprehensive, and will include the following subjects:—

- (a) *Biogeography* (of the British Sawflies) by Mr Robert B. Benson.
- (b) *Nomenclature* (the recently instituted reforms) by Mr Francis Hemming.
- (c) *Phylogeny and Classification* (of the group of Orders termed by Tillyard "The Panorpoid Complex") by Dr H. E. Hinton.
- (d) *Protection* (Nature Conservation) by Capt. C. Diver.
- (e) *Technique and Methods* (the study of Coleoptera) by Mr W. D. Hincks.
- (f) *Behaviour* (Postural habits of Lepidoptera in relation to colour pattern) by Mr M. W. R. de Vere Graham.
- (g) *Economic and Applied Entomology*:—
 - (i) Studies on Wireworms and Click Beetles by Mr A. Roebuck.
 - (ii) Visit to the Lenton Horticultural and Agricultural Experimental Station, Lenton House, Nottingham, Mr J. E. Cranham, Station Entomologist.
- (h) *Field Meetings* at Dovedale, Derbyshire (all day) and part of Sherwood Forest (pre-Congress).
- (i) *Collections* (visit to the Nottingham Natural History Museum, Mr H. C. S. Halton, Curator).

On the social side the Congress will be welcomed by the Vice-Chancellor; there will be a Reception by the Lord Mayor; a Conversazione and Dinner; visits to the Castle Museum (Works of Art), Arboretum, the University and Wollaton Parks, and to the Trent Embankment Memorial and Gardens; a Coach drive across Derbyshire (to and from Dovedale); and two Luncheons and two Suppers in a College Dining Hall. An innovation this year will be a Meeting of Delegates from local Societies throughout the British Isles.

Those desirous of attending, which should surely include every British Entomologist, have only to complete a Form of Application, obtainable from the Organising Secretary, Capt. E. Rivenhall Goffe, Winton Cottage, Kings Somborne, Hants, who will allot them inexpensive accommodation in University Halls of Residence.

CURRENT NOTES.

BRITISH ABERRATIONS OF THE GATEKEEPER BUTTERFLY, MANiola TITHONUS (LINNAEUS 1771), MEADOW BROWN BUTTERFLY, MANiola JURTINA (LINNAEUS 1758), AND THE SMALL HEATH BUTTERFLY, COENONYMPHA PAMPHILUS (LINNAEUS 1758).—I feel that this paper, published in the Trans. S. Lond. Ent. and Nat. Hist. Society, 1948-1949, cannot be allowed to pass without criticism. The three species were dealt with carefully and concisely by B. J. Lempke in Lambillionea, 1931, 1934, and 1935, in three papers, in which all forms previously described were given, the synonymy clarified, and a few additional forms named. Others have been named since and a few more might with good reason have been named by Mr Leeds. He, however, has ignored most of the names given by others, and of those he has mentioned some are replaced or covered by new ones. For instance he tells us that *pallidula* covers *mincki*, Seebld. Some of the host of names given by Mr Leeds are for unnecessary subdivisions of forms already named, others are synonyms and will merely encumber the literature and cause confusion to future workers. It is obvious that the author of this paper has no knowledge of the laws of nomenclature or is determined to transgress them. Anyone may inadvertently create a synonym, but there can be no excuse for deliberately ignoring or sweeping aside the work of Oberthür, Tutt, and others. A paper like this does great harm to British Entomology, and it is to be hoped that in future no editor will pass another of the same kind for publication. The coloured plates illustrating it are beautiful and bear comparison with the best work of the past. It is a pity the text is so unworthy of them.—E. A. COCKAYNE.

BUTTERFLIES FROM S.E. IRELAND.—The following fifteen species of butterflies occurred within a radius of two miles of this property (Corballymore), and were more or less common:—*Pieris brassicae*, *P. napi*, *Leptidea sinapis*, *Euchloe cardamines*, *Vanessa atalanta*, *V. cardui*, *Pararge megera*, *P. aegeria*, *Maniola jurtina*, *M. tithonus*, *Aphantopus hyperanthus*, *Coenonympha pamphilus*, *Aglais urticae*, *Lycaena phlaeas*, *Polyommatus icarus*. Seven others were scarce, viz., *Pieris rapae*, *Colias croceus* (one ♂, October 17th), *Nymphalis io*, *Argynnис paphia*, *A. aglaja*, *Lycaenopsis argiolus*, *Eumenis semele*. The abundance here of *Vanessa atalanta* and *V. cardui* is worthy of mention.—L. H. BONAPARTE WYSE, Corballymore, Co. Waterford.

ENTOMOLOGIST'S GAZETTE.—A journal is to be published quarterly at 36 Strand devoted to all aspects of collecting and study. The editors will be E. W. Classey, F.R.E.S., and R. L. E. Ford, F.Z.S. A quarterly publication for the advancement of our knowledge of British Entomology in all its branches, especially the Lepidoptera, Collecting Methods, Technique, Literature and History.

OVA DEPOSITED ON WALLS.—The laying of ova by *Macrothylacia rubi* on surfaces other than food plants has been remarked upon from time to time. On June 9th, when collecting on one of the Derbyshire moors, I came across a batch of *rubi* ova deposited on a stone wall, and approximately two feet from the ground. There were thirty-two eggs in the batch and the position was facing south. The sunshine was brilliant at the time, and the wall surface was quite hot to the touch. The following day I found another batch of *rubi* ova about two miles from the previous position. This batch, numbering twenty, was also on the south face of a stone wall and was about three feet from the ground. Shortly afterwards I was more surprised to find, on the same wall face, a batch of forty-two ova of *plantaginis*. Finally, on June 18th, on the same moors, I observed a batch of fifty-three *rubi* ova on the south-west face of a low wall, and about one foot from the ground.—T. D. FEARNEHOUGH, 25 Ramsey Road, Sheffield.

ERRATUM.

P. 28, line 4. Read ♂ for ♀.

P. (71), last line. For *coerulescens* read *cuerulescens*.

Eriogaster lanestris, L., ab. **deleta**, nom. nov.—In the *Entomologist's Record*, 1944, 56, 53, I named the form of *Eriogaster lanestris*, L., with no white spot at the base and without the white transverse line ab. *obsoleta*, having overlooked the fact that Tutt (*Brit. Lep.*, 1900, 2, 502) had already given this name to the form with the white central spot absent. For ab. *obsoleta*, Cockayne, which is preoccupied, I substitute the name ab. *deleta*, nom. nov.—E. A. COCKAYNE, 8 High Street Tring.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.

Wanted—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—P. Siriter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.

Wanted—for the British Museum larval collection, larvae of Chrysomelid beetles, alive or preserved. Liberal exchange if required.—Dr S. Maultick, British Museum (Natural History), Cromwell Road, London, S.W.7.

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—Kenneth G. V. Smith, Antiope, 38 Barrow Street, Much Wenlock, Salop.

Wanted—Seguy; Etudes les Mouches Parasites, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the Ent. Mon. Mag. for April 1938.—Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.

For Disposal—A set collection of 885 specimens of Pyralids, including Galleridae, Chilidae, Crambidae, Phycidae and Pterophoridae. Am quite prepared to almost give them away but would exchange for British Lepidoptera of other families. Wanted—British Bombyces, Noctuids and Geometrids, etc., in exchange for specimens of the same families—Desiderata lists exchanged.—Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.

Wanted—Specimens of all the British Hepialidae (Swifts). Have many duplicates to offer in exchange, all families, and invite lists of wants.—Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.

Duplicates—*Croceus*, *Helice*, **Hyperanthus* and var. *arete*, and intermediate forms **Egeria*, **C. album*, **atalanta*, **io*, **selene*, *Euphrosyne*, **megarea* (*=bred). Desiderata—*Rhopalocera* only, especially ova, larvae or pupae.—A. J. Exeter, Fernlea, Blackberry Lane, Four Marks, near Alton.

Duplicates—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). Desiderata.—Numerous to renew.—L. H. Bonaparte Wyse, Corballymore, Co. Waterford.

For Sale—Tutt's "Hints for the Field Lepidopterist," 3 volumes.—W. J. Watts, 42 Bramerton Road, Beckenham, Kent.

Communications received:—Fergus J. O'Rourke, O. Querci, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopulo, D. Fearne-hough, R. J. R. Levett, E. C. S. Blathwayt, E. P. Wiltshire, A. E. Wright.

All Communications should be addressed to the Acting Editor, H. J. TURNER, "Latemar," 25 West Drive, Cheam, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: July 5th, Sept. 6th, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: May 24th, June 14th. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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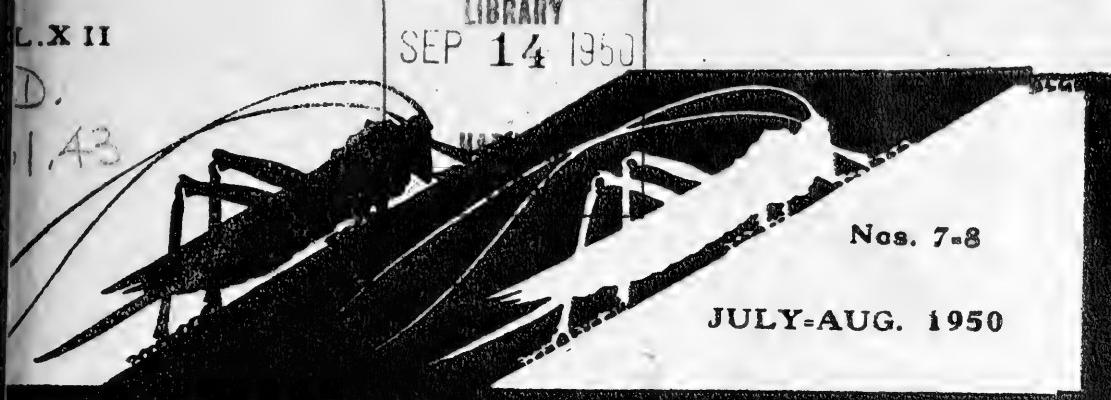
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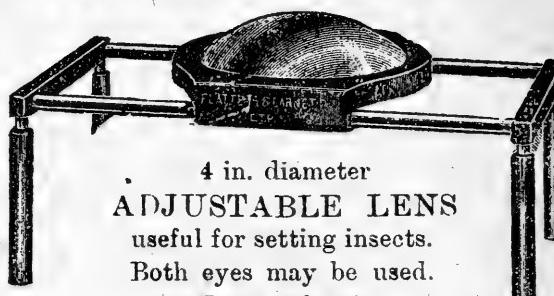
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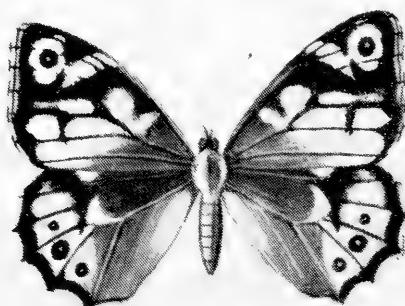
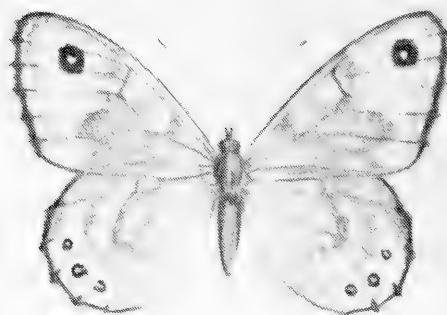
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Collecting in Anatolia—Dr Burr's paper in June Number.



Aberrant specimens of *P. megera* and *P. aegeria*.

ABERRANT SPECIMENS OF P. MEGERA AND P. AEGERIA.

By T. D. FEARNEHOUGH.

Plate IV.

The drawings reproduced in the accompanying plate are of two unusual specimens, of allied species, which although some years old have not previously been put on record.

The extraordinary aberration of the Wall Brown figured was reared from a batch of ova deposited by a typical female captured in August 1940 at Lindrick in South Yorkshire. When the larvae of the batch were about half grown a number of them were given to a friend, and from my remainder only the one aberration was reared, all the other specimens being typical. However, from my friend's larvae several specimens were reared showing similar variation in lesser degree. In these specimens only the hindwings were aberrant, the best having the hindwings completely translucent and the forewings normal. Unfortunately my friend's specimens no longer exist.

The present specimen has all the wings translucent, but the eye spots are normal, and a thin brown border of dense scaling edges the wings. In the translucent areas the colouring is faint but the pattern is clearly visible.

It is noteworthy that Barrett in his *Lepidoptera*, 1893, Vol. 1, p. 237, records transparent specimens as follows:—"Among a number reared from the egg last year (1891) by Mr F. W. Hawes, are three specimens in which the wings are semi transparent producing in these specimens an extraordinary likeness to some of the species of the curious mountain frequenting genus *Oeneis*."

The Speckled Wood female was also reared; in this case from autumn larvae of Plymouth origin. It was a lone variety, its congeners being typical, and being reared indoors emerged on the unusual date, January 6th, 1945. The upperside variation consists of enlargements of the yellow spots, forming extensive pale areas. Underneath, the specimen is also striking, having a pale yellow ground with reduced markings, but these dark and in bold contrast.

A NOTE ON THE NOMENCLATURE OF PHILUDORIA POTATORIA, L.

By E. A. COCKAYNE, D.M., F.R.C.P.

In his valuable paper on this species, published in the *Entomologist's Record*, 1950, 62, 1, Mr B. J. Lempke discusses the nomenclature of the yellow males and arrives at the conclusion that those with pale greyish yellow forewings without orange streaks are ab. *pallida*, Spuler, and that specimens with the ground colour pale yellow and with deep yellow or orange yellow dashes are ab. *berolinensis*, Heyne. Heyne also gave the name *berolinensis* to the pale greyish yellow female form with markings as dark as those of the type. This form, as Lempke says, is common everywhere in England and Holland and cannot be genetically related to the yellow male, which is only found in some colonies

and is usually rare. Caradja (*Iris*, 1895, 8, 93) described under the name *inversa* those males, which most resemble females in colour and those females which most resemble males, i.e., the yellow males and the brown females. Obviously the name cannot be applied to both these forms and must be restricted to that mentioned first, the yellow male. Since Heyne named the yellow male (*Soc. Ent.*, 1899, 14, 3) and the pale greyish yellow female four years later *berolinensis*, as the name for the yellow male, becomes a synonym of *inversa*, Caradja, but can be retained for the pale greyish yellow female, as Lempke says. I cannot agree with him that Heyne's action automatically restricted Caradja's name to the dark female. The yellow male was mentioned first by Caradja and by the law of priority must stand.

Thus the pale greyish yellow male is *pallida*, Spuler, the yellow male with orange dashes is *inversa*, Caradja, and *nigrescens*, Lempke, and *feminalis*, Grünberg, are modifications, all four determined by the same main gene.

It has always been doubtful whether the female corresponding to the yellow male is recognisable. Fortunately, Mr E. P. Sharp in 1925 and 1926 was breeding a pure strain from Cambridgeshire, which gave various forms of yellow male, *pallida*, Spuler, *inversa*, Caradja, and transitions to *nigrescens*, Lempke, but no normal *potatoria*. His females, therefore, were genetically the same and all corresponded with some form of yellow male. Their ground colour varies. One is pale yellowish grey, three are very pale clear yellow with orange fringes, and the rest vary from darker yellow to rich orange yellow, but whatever the ground colour may be the markings are very faint and a delicate pale grey in colour. In most of them the rings round the discoidal spot and the oblique line on the forewings are very narrow and only just visible. A smaller number have broader lines and outside the line on the hindwings there is a faint grey shade. These probably correspond to the males, which are transitional to *nigrescens*, Lempke. The majority of the more richly-coloured specimens have the wings a deeper orange in the areas, which are occupied by the orange dashes in the males.

This discovery clears the air, for *pallida*, Spuler, can be used for the pale greyish yellow female and *inversa*, Caradja, for the pure yellow and orange ones, and these names are scientifically correct, for they apply to males and females which are genetically identical.

Berolinensis, Heyne, remains for the greyish yellow females marked with both grey and brown scales, a form which is no more related to the yellow males than are typical *potatoria* and *lutescens*, Tutt.

Fort Beaufort, C.P.,
4th May 1950.

The long drought continued until February but during and since that month we have had good rains, although nearer the coast it is still very dry. For the last month or six weeks the country round here has been looking beautiful, with long grass and luxuriant vegetation, as compared with the barren conditions at the beginning of the year. It opened badly for Lepidoptera and until after the advent of the rains

there was little to be seen at light, but since the rains that has all been changed, and during the last two months Lepidoptera have been more abundant than for some years. I obtained quite a lot of material for you at light. Butterflies were numerous, too, and *Papilio demodocus* was more abundant than I have ever known it, while the larva has done much damage to the reviving citrus trees. It has been a great season for Sphingids, and the larva of *Chaerocampa celerio* has been particularly numerous. I found some oleander bushes heavily infested with the caterpillar of the Oleander Hawk, a species I have not met before and one for which I have been looking for years. I received some larvae of *Oligographa juniperi* from King William's Town feeding on Tecoma, on which they were abundant, and later got a large number of eggs from the same place. Approximately 91% of the eggs were parasitised by a Trichogramma or allied species.

At the moment I am getting a 5th generation of larvae from the Mesocelis, of which the male has not yet been found. I have written up the data so far obtained for publication, and hope it comes out in our Ent. Journal before the end of this year.

J. S. TAYLOR.

APAMEA FURVA, SCHIFF., SSP. BRITANNICA, SSP. NOV.

By E. A. COCKAYNE, D.M., F.R.C.P.

On comparing the long series of Continental *Apamea furva*, Schiff., at Tring with the British ones I was struck by the smaller size and darker and duller appearance of the latter. The British specimens from all the localities represented in the collection show little variation. Some from St Bees, Cumberland, are a little paler and brighter, but the difference is small. One might expect the form which occurs in the Warren at Folkestone on the chalk cliffs to be paler, but I have not seen any from this locality. Shetland specimens, of which there is a long series, are indistinguishable from those found on the mainland of Scotland. Lempke (*Tijdschrift voor Ent.*, 1947 (1949), 90, 75) says "the English race, as figured by South, Pl. 131, figs. 3 and 4, with its grey-brown forewings, which are very indistinctly marked (still less than in the Austrian form) sharply contrasts with ours and very probably deserves a special name." His opinion, based on a wide knowledge of the various Continental races, confirms me in my opinion that the British race is a good subspecies.

Apamea furva, Schiff., ssp. *britannica*, ssp. nov.

Small, dark, and obscurely marked, often with no white scales in the reniform or bordering it, greyish-brown in colour. Alike in both sexes.

Type ♂. Shetland, 24.vii.1912. Rothschild Coll.

Allotype ♀. Rannoch, Perthshire, 6.viii.1938. E. A. Cockayne.

Paratypes. 1 ♂, St Bees, Cumberland, vii.1906. Rothschild Coll.

1 ♂, Nigg, Aberdeenshire, 1893. A. Horne. Cockayne Coll.

1 ♂, Kincaid, 1893. A. Horne. Cockayne Coll.

1 ♀, Rannoch, 6.viii.1938. E. A. Cockayne.

1 ♀, Co. Sligo, Ireland. P. H. Russ. Cockayne Coll.

1 ♀, Shetland, 27.vii.1912. Rothschild Coll.

TWO MORE NEW ANTS FROM TURKEY.

By HORACE DONISTHORPE, F.Z.S., F.R.E.S., etc.

Sub-family: *Myrmicinae*.Tribe: *Pheidolini*.*Messor testaceus*, sp. n.

Nos. 102 and 110.

Pale reddish yellow, mesonotum and epinotum a little darker, smaller specimens darker, some almost dark brown. Clothed with sparse yellow outstanding hairs; more thickly on the gaster.

Head a little longer than broad, finely longitudinally striate, sides almost straight, posterior angles rounded, posterior border excised in middle, finely margined; mandible brighter red and more shining, triangular, rather strongly longitudinally striate, masticatory border armed with three blunt black teeth at apex, preceded by smaller dentules. *Clypeus* rather larger, longitudinally striate, anterior border finely crenulate, sinuate on each side, posterior border round in middle, and inserted between the frontal carinae. *Frontal area* not very distinctly defined, finely longitudinally striate; *frontal carinae* narrow, raised, sharp, parallel, finely longitudinally striate, extending on each side as far as opposite the centre of eyes; *antennal foveae* deep; *antennae* 12-jointed, long, *scape* narrow and curved at base, extending as far as posterior border of head, 1st joint of *funiculus* long, nearly as long as the three following joints taken together, the last 4 joints forming a club, the last joint being longer than each of the three preceding it, these being of equal length. *Thorax* longer than broad, broadest across middle of pronotum; *pronotum* convex, rounded on disc and at sides, finely transversely striated at base of neck; *mesonotum* longer than broad, narrow on disc and finely transversely striated; *suture* between meso- and epinotum deep; *epinotum* rather long, transversely striate, dorsal surface considerably longer than declivity, angle between them rather abrupt. *Petiole* with rather long peduncle, node bluntly pointed, higher than postpetiole; *postpetiole* rounded above and at sides, a little broader than petiole, rather coarsely longitudinally striate; *gaster* oblong ovate, narrowed in front and behind and shining, 1st segment very long. *Legs* long. *Long.*, 4-7.5 mm.

Described from one soldier and ten workers, S.E. Turkey, Hazer Gölü, July 30th, 1947 (C. Kosswig).

Sub-family: *Formicinae*.Tribe: *Camponotini*.*Camponotus (Orthonotomyrmex) kosswigii*, sp. ii.

Head, thorax, petiole, antennae and legs rather bright red, gaster black, base of segments narrowly yellow, rather shining, clothed with very short, sparse, decumbent, golden hairs and very sparse outstanding hairs.

Head almost square, rather stout, cheeks slightly narrowed in front, posterior angles rounded, posterior border slightly and widely excised; faintly transversely striate with small scattered punctures; *mandibles* stout, triangular, *masticatory border* armed with 4 or 5 short but

strong black teeth; *clypeus* convex, somewhat square, anterior border narrowly black; bidentate, excised in middle, posterior border slightly excised in middle; *frontal area* small, not very distinct; *frontal furrow* very narrow, not extending beyond base of frontal carinae; *frontal carinae* narrow, sharply edged, somewhat high in middle, contracted in front and behind; *antennae* 12-jointed, fairly long; *scape* curved, extending beyond posterior border of head, first joint of *funiculus* longer than the two next taken together, last joint pointed, not equal in length to the two preceding joints taken together. *Thorax* longer than broad, broadest behind centre of pronotum, very finely transversely striae; *pronotum* convex, narrowed in front towards neck, sides rounded, posterior border embracing mesonotum; *mesonotum* only slightly convex, a little longer than broad, sides almost straight; *suture* between mesonotum and epinotum deep; *epinotum* forming a protuberance, dorsal surface flat with sides straight and narrowly margined, declivity abrupt, concave. *Scale of petiole* rather high, upper surface rounded, anterior surface slightly convex, posterior surface slightly concave; *gaster* oblong oval, not much longer than broad, narrowed to apex, second segment slightly longer than the others. *Long.*, 4-6 mm.

Described from eight workers, West Turkey, Erbeyll, June 14th, 1947 (C. Kosswig).

NOTES ON TRYPETIDAE (DIPTERA).

by J. E. COLLIN, F.R.E.S.

Spilographa virgata Collin (1946), the female of *Spilographa (Stemonocera) spinifrons* Schroeder (1913) ♂.

After the publication of the description (from females only) of *Spilographa virgata* in this Magazine (Vol. LVIII, p. 17), Dr Hering of Berlin wrote to me suggesting that it might prove to be the female of *Spilographa spinifrons* described from the male only by Schroeder in 1913 from Silesia, and recorded by Seguy (as *Vidalia spinifrons*) from Gerardmer (Vosges), France, Seguy having followed Hendel in the incorrect use of *Vidalia* Desv. in place of the name *Stemonocera* Rdi. (v. Collin, *Ent. Record*, LIX, Suppl., p. 10).

The probability that Dr Hering was correct in his suggestion has become a practical certainty owing to the discovery among some unidentified Trypetidae in Dr Wood's Collection, now in the British Museum, of a female *S. virgata* taken in Stoke Wood (Hereford) on the 30th July 1902, and a male of *S. (Stemonocera) spinifrons* taken in Haugh Wood, in the same County, on the 17th of July 1911. The similarity in this Herefordshire pair of all characters, except the remarkable sexual one in the structure and chaetotaxy of the male frons, places the synonymy of *virgata* and *spinifrons* beyond any reasonable doubt.

The male is very distinct from the female, and from any other species of *Spilographa* subg. *Stemonocera* in having each of the prominently ridged sidemargins of frons armed in front with a row of three very long and stout black spines, followed by two more normal, but still strong and spinose bristles at middle of each sidemargin, and ending above in one quite small upper orbital bristle. Ocellar bristles also very small.

The fact that the female usually has two pairs of upper orbital bristles (as in *Spilographa*) is further proof (if needed) that species of *Stemonocera* (*Vidalia* Hend. nec Desv.) are species of *Spilographa*, except for male sexual characters, and that *Stemonocera* should rank as no more than a subgeneric name.

Paroxyna parvula Loew (1862) = *P. absinthii* F. (1805).

Meigen in 1826 was followed by Rondani (1870), Hendel (1927), and Seguy (1936) in using the name *absinthii* F. for the species described by Loew in 1844 as *Trypeta elongatula*, while Loew, Schiner, and Bezzi (in Kertesz' "Katalog") considered this a misidentification. Fabricius described *absinthii* from specimens "Habitat in Daniae floribus Artemisiae Mus. Dom. Lund." Prof. Tuxen of Copenhagen at my request has examined the two specimens of *absinthii* in the Dom. Lund Collection in the Copenhagen Museum, and reports that they agree in all respects with the description and figure of *P. parvula* Lw. given by Hendel (1927) from Loew's type specimen, and as *P. parvula* is certainly not uncommon at times in Britain on *Artemisia* growing in coastal areas, and I understand has recently been bred from that plant in Denmark, while *elongatula* Lw. has been bred from *Bidens*, and is *not* found in association with *Artemisia*, there can be little doubt that *absinthii* F. is the correct name for the species known as *P. parvula* Lw., and *not* the correct name for *P. elongatula* Lw.

I would also call attention to the following mistakes in Kertesz' "Katalog":—The references of Scholtz, Frauenfeld, and Schiner (1858) under the heading of *absinthii* as a synonym of *elongatula* Lw., should be transferred to the heading of *elongatula* as a species, and the reference to Rondani under *absinthii* F. as a species, should be transferred to the heading of *absinthii* as a synonym of *elongatula* Lw.

Zetterstedt considered *punctella* Fln. to be a synonym of *absinthii* F., and this synonymy may possibly be correct, but Hendel has described *punctella* as a distinct species. I have examined a large number of specimens of *absinthii* (*parvula*), and find that there is very considerable variation in the wing-markings, including variation towards a pattern relied upon by Hendel for distinguishing *punctella*, nevertheless I believe that there is a species on the Continent closely allied to, but distinct from, *absinthii* which can be distinguished by a difference in the shape of the head. This may be the *dracunculi* of Rondani, the type of which was stated to have been a specimen received from Bigot under the name *absinthii*, because there are specimens of this distinct species (mixed with others) under the name *absinthii* in Bigot's Collection. The identity of *punctella* Fln., however, must remain in doubt until an examination has been made of the specimens in Fallen's and Zetterstedt's Collections.

Paroxyna elongatula Loew (1844) = *P. bidentis* Desv. (1830).

This species has in common with *P. tessellata* a long mouth-opening and produced front mouth-edge, while the jowls below eyes at their narrowest point are much narrower than third antennal joint, and the femora are not darkened as they are in *tessellata*. It is not a common species, but Mr M. Niblett has recently bred it from flower-heads of *Bidens tripartita* gathered in two widely separated localities in Surrey.

This record of association with *Bidens* in this country, an association already known on the Continent, appears to make it certain that Desvoidy in 1830 described the same species under the name of *Stylinia bidentis*, and that it should consequently be known under the name of *Paroxyna bidentis* Dsv., a name which, in addition to priority, has the further advantage of being informative of the habits of the species. Desvoidy wrote of his species as "abonde à la fin d'août sur le *Bidens tripartita*."

Trypetta loricata (Rdi., 1870) of Hendel, new to Britain.

Specimens answering to this species, as redefined by Hendel (1927), have been taken by Mr H. W. Andrews at Old Sarum, near Salisbury, (1 ♀), and at Freshwater, I. of Wight (both sexes), while I possess a male which was bred by Mr M. Niblett from a flower-head of *Centaurea scabiosa* gathered at Epsom Down (Surrey) on the 10th July 1949, the fly emerging eight days later. All these specimens answer to the *T. loricata* (Rdi.) of Hendel in having the female ovipositor shorter than in *jaceae*, and the presence in both sexes of an additional black spot at the insertion of the supra-alar bristle, making ten such thoracic dark spots, instead of the eight in *jaceae*. These appear to be the only reliable distinctive characters, because *jaceae* varies in colour of thorax, length of the lower (acute) point of anal cell, and colour of hairs on frontal orbits.

One fact appears to have been overlooked by both Hendel and Hering. Rondani described *hexachaeta* Lw., and *jaceae* Dsv., as having "puncta thoracis octo," and described *loricata* (of which he knew only the male) as "similis *hexachaeta* Lw. et *jaceae* Desv." with the only difference in thoracic spots as "punctisque thoracis in fuscidine minus distinctis." He followed this with the description of another species "ruttata n." of which he wrote "Duabus praecedentibus" (i.e. *loricata* and *hexachaeta*) "affinis, setarum dorsalium thoracis numero et positione, . . . punctorum nigrorum distributione in thorace et abdomine, . . . sed differt ab *hexachaeta*, . . . etc., etc." It would appear therefore that *loricata* was a species with only eight thoracic spots like *hexachaeta* and *jaceae*, and not ten as in the *loricata* of Hendel and Hering. If this should prove to be correct then *loricata* Rdi. was only a dark form of *jaceae* and not our species.

Hering (1937) was of the opinion that a central European form of *loricata* (Rdi.) Hendel, was sufficiently distinct from the typical (smaller) south European form to merit the new varietal name of *septentrionalis*, but the Old Sarum specimen taken by Mr Andrews is so very much smaller than the other British specimens seen by me that the species evidently varies in size in this country. This supposed large variety of *loricata* was stated by Hering to have been bred from the flower-heads of *Centaurea scabiosa*.

It is to be hoped now that both the food plant and localities where the species occurs in this country are known, that it will be bred in sufficient numbers to be able to settle any questions of variation.

COLLECTING NOTES.

ACRONYCTA ALNI TAKEN AT LIGHT.—I have to record the taking at light in my moth trap on the 6th June of a specimen, just emerged, of *Acronycta alni*, the Alder. I record this as I believe it is rarely met with and is a good find. The New Forest district of Hampshire is where it is most likely to be taken but occasional specimens have been recorded in other counties of England.—CHAS. B. ANTRAM.

DWARF BUTTERFLIES IN WARWICKSHIRE.—On 13th May 1950, I was collecting in a wood near Ryton-on-Dunsmore in Warwickshire. I was in the wood for something under two hours, and in that short time I took three dwarf butterflies, a male and a female *Euchloe cardamines*, and a male of the spring form of *Pieris napi*. Frohawk gives the average wing span of *E. cardamines* as 46 mm. Of my captures, the male had a wing span of 34 mm. and the female of 39 mm. *P. napi* has an average wing span of 50 mm., again according to Frohawk, but the male that I netted had a wing span of only 38 mm. Frohawk's averages agree with normal specimens in my collection.

On 20th May I again took a dwarf male *E. cardamines* in a wood about fifteen miles from the previous locality. This butterfly had a wing span of 38 mm. In both males of *E. cardamines* the orange patch does not extend beyond the discal spot. Dwarf specimens of butterflies do turn up occasionally, of course, especially in the case of *E. cardamines*, but three in less than two hours seems a little surprising. I am wondering if the drying up of the foodplants during the excessive heat of last Summer may be a possible explanation. It would be interesting to know if entomologists in other districts have noticed an unusual number of dwarf butterflies this Spring.—CARTWRIGHT TIMMS, F.R.E.S., 524a Moseley Road, Birmingham, 12.

CURRENT NOTES.

PROFESSOR NEAL A. WEBER, of Swarthmore College, Swarthmore, Pennsylvania, plans to leave with his wife and three young children for Iraq on a leave of absence for an academic year, starting the first of September. He may possibly stop over in London between 'planes. On June 15th he expected to leave for the Arctic and his address until the first of August will be:—Arctic Research Laboratory, Box 1310, Fairbanks, Alaska. He was kind enough to say that he always used *British Ants* as valuable text-book material for his students.—HORACE DONISTHORPE, 15.vi.50.

WE have received from Messrs F. Warne & Co., Ltd., a copy of their latest catalogue of their well-known Wayside and Woodland Series of Nature books. It is fully illustrated and is obtainable on application, free of charge, from Frederick Warne & Co., Ltd., 1 Bedford Court, Strand, London, W.C.2.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted.—For the British Museum larval collection, larvae of Chrysomelid beetles, alive or preserved. Liberal exchange if required.—*Dr S. Maultby, British Museum (Natural History), Cromwell Road, London, S.W.7.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antiope, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; *Etudes les Mouches Parasites*, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

For Disposal—A set collection of 885 specimens of Pyralids, including Galleridae, Chilidae, Crambidae, Phycidae and Pterophoridae. Am quite prepared to almost give them away but would exchange for British Lepidoptera of other families. **Wanted**—British Bombyces, Noctuids and Geometrids, etc., in exchange for specimens of the same families—Desiderata lists exchanged.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Specimens of all the British Hepialidae (Swifts). Have many duplicates to offer in exchange, all families, and invite lists of wants.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.*

Duplicates.—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). *Desiderata*.—Numerous to renew.—*L. H. Bonaparte Wyse, Corballymore, Co. Waterford.*

For Sale—Tutt's "Hints for the Field Lepidopterist," 3 volumes.—*W. J. Watts, 42 Bramerton Road, Beckenham, Kent.*

Wanted.—Urgently required for laboratory work this year: larvae (any stadium), or fertile eggs, of *Stauropus fagi*, L. Any reasonable price will be paid.—*P. B. M. Allan, 4 Windhill, Bishop's Stortford, Herts.*

Communications received:—O. Querci, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopulo, R. J. R. Leveitt, E. C. S. Blathwayt, E. P. Wiltshire, A. E. Wright.

All Communications should be addressed to the Acting Editor, H. J. TURNER, "Latemar," 25 West Drive, Cheam, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, The Rookery, Breamore, Fordingbridge, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7 : Sept. 6th, October 4th, at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1 : July 26th, August 9th. *London Natural History Society* : Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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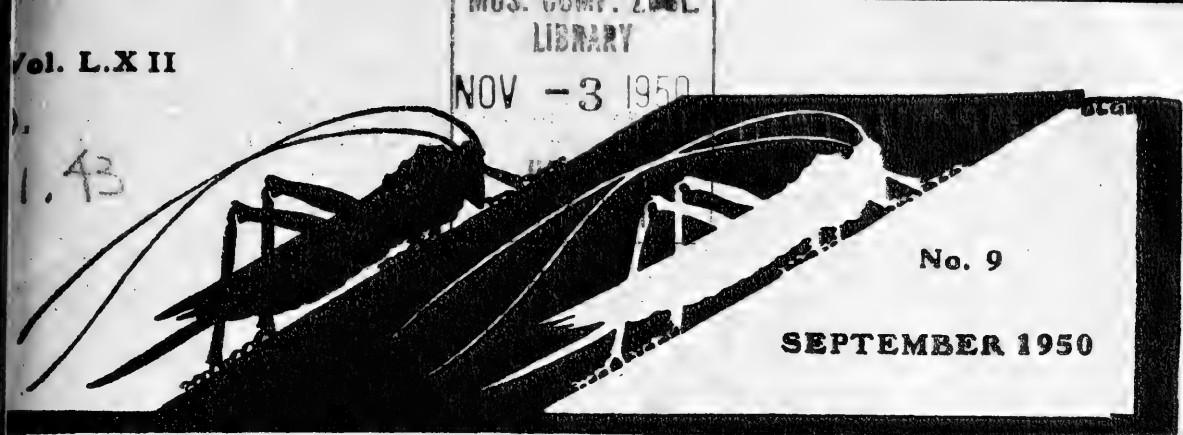
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THE RHOPALOCERA OF THE DARENT VALLEY BETWEEN SHOREHAM AND EYNFSORD, KENT.

By J. E. OWEN.

The purpose of this article is to show briefly the present day status of the *Rhopalocera* in this area. The data were accumulated from 1946 to 1950, and a comparison has not been made with earlier notes and records. It is perhaps best to note here that 1947 was an exceptional year for immigrants and one or two species usually of not too frequent occurrence became common.

The valley, roughly between Eynsford in the north and Shoreham in the south, is about four miles long and up to two miles wide. A small diversion is made by the small valley branching out on the east side in which stand Upper and Lower Austin Lodge Farms. The area varies within itself as to the types of country found there; on both sides are fairly steep undulating chalk slopes, the summits of which are covered largely with small patches of beech and mixed woodland. Between woodlands and cultivated areas there are small fields with the typical rich chalk flora, these forming the habitats of most of the resident species. The immigrants, particularly those of the genus *Colias*, are attracted to the lucerne fields sown annually. The valley is surrounded on all sides by country of a similar nature and it is therefore unlikely that there are any conditions which prevent the fauna from being typical of the North Downs.

Pieris brassicae, L., *P. rapae*, L., *P. napi*, L.—All three species are very common, but *P. napi* is somewhat less in abundance than the other two. There is frequently a great influx of immigrants, doing much damage to cabbage fields. *Anthocharis cardamines*, L.—Fairly common throughout the valley. *Colias hyale*, L.—Usually rare but in years of exceptional immigration it is common in lucerne and clover fields during the latter part of the summer. In 1947 nearly fifty specimens were recorded from the valley. In mid-May 1948 a brood hatched at Eynsford. All were very fresh when seen and the wings of one were still limp showing that the species had managed to survive the mild winter of that year. *Colias croceus*, Fourcroy—Fluctuates considerably each year but is usually quite common. In 1947, when the species was very abundant, var. *helice* and many intermediate forms were common. *Gonepteryx rhamni*, L.—Common and well distributed.

Argynnис paphia, L.—Fairly common in sheltered corners of the lower fields but occurs also in fields surrounded by large hedges and containing trees. *Argynnис cydippe*, L.—Rare in this district and only one has been recorded from the valley, 22.vi.1947, near Shoreham. Its true strongholds are doubtless on the Weald—for it never appears commonly on chalk. *Argynnис aglaja*, L.—In profusion on the hillsides all over the valley, particularly at the Eynsford end. *Argynnис euphrosyne*, L.—Common where it occurs but not very well distributed. The best locality is a small copse near Upper Austin Lodge Farm. *Polygonia c-album*, L.—Evenly distributed and fairly common. *Aglais urticae*, L.—Very common throughout the area but was rather scarce in the spring of 1947, possibly due to the severity of the preceding winter. *Nymphalis polychloros*, L.—Not recorded in the valley during this period but one was taken at Farningham Woods, about one mile north of Eynsford,

by A. J. Showler, during 1947. *Nymphalis io*, L.—Not so common as *A. urticae* but distribution similar. *Vanessa cardui*, L.—The early immigrants are quite common in the spring and there is usually a large brood later in the year. Very common in 1947, even exceeding *Vanessa atalanta* in the autumn. *Vanessa atalanta*, L.—Usually very common but fluctuates considerably according to the number of annual immigrants. *Limenitis camilla*, L.—Occurs in all woods where honeysuckle abounds and appears to be steadily increasing.

Pararge aegeria, L.—Although it has only recently become established in this district is quite common. It is most frequent near Shoreham but several have been seen near Eynsford and Upper Austin Lodge Farm, as well as a road leading to Eynsford from London via Crockenhill. This species is undoubtably becoming well established here. *Pararge megera*, L.—Common and well distributed. *Eumenis semele*, L.—Common on the chalk slopes and paths. Many are the typical chalk form. *Maniola jurtina*, L.—Very common all over the valley. *Maniola tithonus*, L.—Scarce, found in only one wood near Shoreham. Is replaced by *Aphantopus hyperanthus* throughout the valley. *hyperanthus*, L.—Very abundant and well distributed, often exceeding *M. jurtina* in abundance. *Coenonympha pamphilus*, L.—Common and evenly distributed.

Thecla quercus, L.—Not very frequent but may be seen in small numbers round the large oaks near Shoreham. *Strymonidia w-album*, Knoch—Rare in this area but several were unexpectedly seen near Upper Austin Lodge Farm on the 27th July 1947. The following year it became apparent that a fair-sized colony was in existence here. Specimens have been taken at Magpie Bottom and it may well be that the species is not uncommon in the area as a whole. *Callophrys rubi*, L.—Extremely common in a small field near Shoreham and common over the remainder of the valley. *Lycaena phlaeas*, L.—Common throughout the valley. *Plebejus argus*, L.—Common where it occurs but is localised to a few fields. In one field several specimens were caught, both male and female, with the black border of the wings replaced by a silver border extending along the ribs towards the thorax. In the female this is not quite so pronounced but the orange spots usually bordering the upperside of the wings are replaced by white spots. It is probable that these specimens represent extremes of var. *cretacea*, which is quite common here. *Aricia agestis*, Schiff.—Fairly common on the hilly slopes. *Polyommatus icarus*, Rott.—Very common throughout the valley. *Lysandra coridon*, Pod.—There is one habitat near Shoreham, several adjacent hillside fields, where this species abounds every year and it is generally distributed over the rest of the valley. *Lysandra bellargus*, Rott.—Not very common and localised to one or two fields at Shoreham and Magpie Bottom. *Celastrina argiolus*, L.—Generally, but rather sparsely, distributed over the area. *Cupido minimus*, Fuessl.—Confined to one small field, is not uncommon in this locality. Has decreased recently.

Pyrgus malvae, L.—Common. *Erynnis tages*, L.—Somewhat more frequent than the latter species. *Thymelicus sylvestris*, Pod.—Common. *Thymelicus lineola*, Ochs.—This area is near the southernmost limit from the Thames of this species but it is not infrequent. *Ochloides venata*, Br. & Grey—Very common. *Hesperia comma*, L.—In 1947 it was not uncommon in one or two small fields near Shoreham but in 1948 only

one was recorded in the same localities and none have been seen since. It seems that this species is decreasing.

From these notes it can be seen that the position of the *Rhopalocera* in this valley is favourable; only *H. comma* is decreasing while *P. aegeria* and *L. camilla* have become established. The area is a particularly interesting one, and needs a much more detailed study to gain a comprehensive view of the position of certain species. Being within easy access of London it is ideal for one day trips from there and Lepidopterists would do well by paying more frequent visits.

3 Lockmead Road, Lewisham, S.E.13.

NOTE ON THE BUTTERFLIES OF THE NEW FOREST IN 1950.

By CHAS. B. ANTRAM.

Last year, 1949, will be remembered most for the long succession of sunny months and about the driest year since 1938. Three years ago there was a winter of exceptional severity with a snow-bound countryside and frosts rarely equalled for severity. A long memory would be needed to recall five months to equal last year's dry weather over the period May to September, and while that sort of weather favoured most butterflies it was probably the cause of scarcity in some and irregularity in appearance of a number of species, which though abundant appeared some two or three weeks ahead of the usual time.

The winter of 1949-50, in the South at all events, started exceedingly mild, dry in January with some hard frosts, while in the first half of February it was mild with excessive rain. Then to the end of April weather remained generally cold with gales and very few of the usual hibernators were about. On the 24th April we started the day with sunshine and in the early afternoon had a fall of snow followed by more sunshine and then a good hail storm and again sunshine until sunset. Such is our English weather. A few "Orange Tips" appeared about the 20th of the month in a short warmer spell but no more were seen for some days until early May, the weather remaining abnormally cold.

In my notes for 1949, recorded in the November issue, No. 11, of "The Journal", it will be noticed that the common spring species were in that year scarce, but when we come to compare conditions in the current year one might almost say that there were none at all. With the exception of the Orange Tip, which was anything but plentiful, all the other usual spring species were hard to find. Some observers have remarked that they had not seen a single specimen of the Vanessidae the whole spring and summer and only one or two Cabbage Whites. These have certainly been exceedingly scarce in these parts throughout the year, seldom more than one at a time and then widely apart and at long intervals. This sporadic appearance seems to have been a feature of the year as it was noticed the Fritillaries, White Admiral and other species, typical to the New Forest in July, were plentiful in some spots and almost absent in others but in all instances thinly distributed, emerging very irregularly and spread over a longer period.

Considering the above factual remarks we must now come to a correct reason for this scarcity of insects in the past season. We know

very well that drainage and opening up of new land, the increase in built-up areas, etc., resulting in the disappearance of the food-plant to say nothing of over-collecting of the rarer species in certain parts has been chiefly the cause of certain species having become extinct or very scarce, but that covers a large number of years. What we have to account for is, what has happened in recent months to so markedly effect the scarcity of so many of our butterflies this year. Next year, conditions being favourable and given further necessary time, the common species will no doubt be again plentiful, so I think we must put our present trouble solely down to unfavourable climatic influences. It has been suggested that it is owing to the increase in the use of insecticides but that cannot be the reason for such sudden and marked effect, in so short a period, on those species not feeding on crops. Weather has affected the Cabbage Whites in like manner rather than being the effect by the use of insecticides on the cabbage patch.

Hibernating larvae and chrysalids in particular do not take kindly to sudden and frequent changes in the weather but do best perhaps in long spells of even the severest winter like that of 1946-47. A mild winter possibly does more harm than a severe one and our winter of last year was very mild generally but with many changes to periods of sharp frosts. It can be understood that hibernating chrysalids of the butterflies, which are usually in exposed sites, in mild and at times abnormally warm weather think it time to be getting on with their development towards attaining the perfect insect and then along comes a sudden change to nights of sharp frosts. If this happens once in a while it may do no great harm and would have little effect on larvae which are better sheltered but should these conditions be repeated several times throughout the season it is more than likely to kill off the majority of chrysalids, having started development and then suddenly checked. It looks as if that has been the case this year. It will be remembered that the summer of 1947 following that awful severe winter was a very good year for collectors as butterflies in that year were in great abundance. I hope this settles the doubt in some peoples' minds that the almost complete absence of many species of our butterflies this spring and summer is alone due to the very frequent changes in the climate.

On the other hand, just over the border of Hants into Dorset the Chalk-Hill Blue was nearly as plentiful as usual and I never saw so many Meadow Brown and Marbled Whites which simply swarmed. These apparently have in no way been affected by the weather as in the other species under review.

The situation in regard to *Melitaea cinxia*, the Glanville Fritillary, in its new locality at Sway is satisfactory in that its area has still further extended and thousands appeared at the end of May and lasting throughout June. I captured some 200 specimens, more of the females than males and liberated them on my property and another locality where there is plenty of the food-plant. It is hoped they may establish themselves in the new sites.

Sway, September 1950.

AN ATTEMPT TO EXPLAIN THE DEVELOPMENT OF PIERIS RAPAE AT PHILADELPHIA DURING THE YEAR 1932.

By O. QUERCI.

(Continued from page 51.)

Figures in parenthesis indicate the max. temperature: either single, or average when more days are quoted. Capitals refer to Table II. E.R.=Entomologist's Record, xlvii, 1935.

May 15-18 (78). Pupae survived to winter emerge. Females mate at once and lay many eggs during about a week (A). After they die.

May 19-20 (73). Other adults emerge. Larvae begin to hatch (B).

May 21-24 (75). Larvae grow (A). Only old adults fly laying eggs.

May 25 (86). Some larvae, hatched on the 19th, form pupae (A).

May 26-27 (87). Ground has dried and becomes hot owing to intense sunshine. Many larvae die (G). We see no more *rapae* fly.

May 28-31 (73). It has rained. Fine climate, but scarce weeds. Both the larvae which have survived, and those hatching now, are active. The ones which can get food (E) grow, and if they reach to be mature form pupae (B).

June 1 (85). Other pupae are formed by the remnant larvae (A).

June 2-3 (82). A few pupae, formed on May 25th, produce adults which lay eggs (A).

June 4-6 (90). Dry soil, scarce weeds, a storm in the afternoon of the 4th. Afterwards intense sunshine while the air is electrized (H). Very few larvae survive. On the 6th it rains.

June 7-8 (74). The larvae which hatch now survive (B).

June 9-11 (78). Dry land, feeble sunshine. Larvae which can get food grow (K); the others spread all over the country.

June 12-14 (70). Cloudy and rainy. The larvae which have become feeble, owing to long starvation, collapse during the nights at 58° (D). Those which survive are little active.

June 15-17 (83). Heavy rains and wind up to 30 miles per hour. Many larvae drown (M).

June 18-21 (75). Feeble sunshine, coldish nights (58°). Other starving larvae collapse (D).

June 22 (90). Intense solar rays, barren and hot ground (G).

June 23-25 (81). Eggs are always laid by adults on the wing. Larvae hatching now survive owing to feeble sunshine (K).

June 26 (92). From 3.15 to 3.40 p.m. trace of rain, stormy weather, intense sunshine. High mortality (I). Later it rains.

June 27-30 (88). It rains during the night of the 27th. Weeds blossom.

July 1 (93). Almost dry land, but dense weeds in many places of the field. Pupae are formed by sheltered larvae (G).

July 2-3 (80). Heat decreases, weeds increase. Few larvae die (G).

July 4-6 (78). Rainy and cloudy (B).

July 7-8 (85). Wet ground, tall weeds, intense solar rays. Many pupae are formed and the species would multiply its number indefinitely because all environmental and climatic factors are favourable. A large outbreak of ants controls fertility (N).

July 9-11 (89). Activity increases (A). Ants destroy a large percentage of progeny (N).

July 12-19 (87). Dry ground, vegetation decreases, mortality increases (G).

July 20 (83). Arid country. *Lepidium virginicum*, the larval of *rapae* food is yet verdant but its thin stems do not offer suitable shelters. In the afternoon the sun shines with an exceptional violence in spite of the moderately high temperature. All the larvae of Pierinae in our breeding-cages collapse by flaccidity (*E.R.*, 1935, p. 74). The mortality in the meadow is certainly very high (G) because a week later the adults on the wing become suddenly very scarce (*l.c.*, p. 87).

July 21-23 (87). An hurricane, wind 38 miles per hour (M).

July 24 (78). Fine climate. Almost no plants in the field (E).

July 25-26 (86). Owing to lack of food, most larvae neither grow nor die (E).

July 27 (90). Arid and burning soil. High mortality (G). In the afternoon a torrent shower is little absorbed.

July 28 (89). Damp land. Larvae hatching now survive, weeds blossom (A).

July 29 (86). Ground is dry again, but weeds grow. They can not offer shelter because trace of rain evaporates while the air is electrized (I). Most caterpillars rot.

July 30-31 (82). Lovely climate, many weeds (G).

August 1-2 (85). Dry soil, many weeds, feeble sunshine. Most larvae survive and grow (G). In the afternoon of the 2nd it rains.

August 3 (78). It rains both day and night. Water deeply absorbed by land.

August 4-9 (89). Humid soil, plenty of weeds, strong solar rays. Great activity (A), but also ants are very active controlling abundance (N).

August 10 (90). Both an hurricane (M) and ants (N) re-establish equilibrium.

August 11-16 (85). Very few larvae have remained alive in the field, but there are thousand eggs, and many pupae that will emerge gradually during the following days. Ants continue to destroy (N).

August 17-19 (82). Another storm kills most larvae (M).

August 20-25 (85). Humidity, weeds, strong and continual sunshine (A).

August 26 (88). In the afternoon the soil dries and becomes burning. Larvae without shelter collapse (G).

August 27 (90). Arid soil, poor vegetation. In the morning many larvae are killed by the radiant energy rising from the hot land (G); in the afternoon a storm occurs (M).

August 28-30 (84). Humid soil. Larvae hatch and survive (A). A large number of adults on the wing (we take 388 in 3 days) lay thousand eggs.

August 31 (95). Arid land, scarce weeds, high vapour pressure (more than 800 in the afternoon). During the total eclipse of the sun the humidity of the air forms drops of water upon the ground. Later the solar rays are violent and the atmosphere is electrized by lightnings. High mortality of larvae and feeble pupae (I).

September 1-5 (91). The destructive waves continue (G.I.). Almost all the larvae that hatch die soon. It rains during the whole night of the 5th.

September 6 (86). Vegetation blossom again. The larvae which hatch survive (A).

September 7-8 (74). Feeble sunshine, scarce activity (F), many ants (N).

September 9-10 (78). Activity increases, but almost no larvae are yet mature (A).

September 11-15 (81). Humid soil, many weeds, sunshine, heat. Many pupae are formed (A) and a large outbreak of ants occurs (N).

September 16 (75). Rain, lack of sunshine. Scanty activity (F).

September 17-19 (76). Wet country, feeble solar rays, coldish nights (56°). Feeblest larvae collapse (C).

September 20-21 (85). The mature larvae form pupae (A). Other larvae hatch.

September 22 (79). Feeble sunshine. It is now 17 days since the ground has remained humid and cold. Activity of insects decreases. The larvae in our cages do not feed. Some larvae die (D).

September 23 (88). The soil has dried. Little rain, electrized air, violent sunshine. Very few larvae remain alive (I).

September 24-26 (72). Feeble solar rays, cold nights (55°). Perhaps no living larvae are in the field. Eggs dry, pupae become dormant (O).

September 27-28 (72). Rainy days.

September 29-30 (67). On the 30th the temperature drops (45°) during the night (C).

October 1-3 (78). Fine weather. A few adults on the wing. Most are worn.

October 4-6 (76). Heavy rains. In our warmed rooms some larvae form pupae but not, certainly, in the field.

October 7-8 (67). Muddy country, cold nights (C).

October 9-14 (65). A few worn adults are on the wing when the sun shines. After the 14th we see no more *rapae* fly.

(To be continued.)

BUTTERFLIES NEAR STOCKHOLM.

During a recent visit to Stockholm I had two short opportunities of seeing something of the local butterflies. On the afternoon of 8th July I went with a friend by boat down Stockholf Fiord to the small island of Waxholm, where we walked round for a couple of hours and I had my first bathe in the Baltic, from a pine-covered promontory. The terrain was limited, and there was much wind and cloud; but nonetheless we saw nine species of butterflies, including *Pieris napi*, L., *Pararge maera*, L. (a very fine, dark race), *Aphantopus hyperanthus*, L., *Maniola jurtina*, L., *Aglaia urticae*, L., *Melitaea athalia*, Rott., *Argynnis euphrosyne*, L., *Polyommatus icarus*, Rott., *Ochloides venata*, B. & G.

On the next day, Sunday, we joined up with Mr and Mrs Hemming and Mr Norman Riley, and my friend, who had not collected since school-days, was armed with a net and acquitted himself nobly. We

took an early train from Stockholm to Bergsbrunna, near Uppsala. At the station we were met by Dr Petersen, who is Reader in Entomology at Uppsala University, and under his guidance made a circuit through the forest to his family farm on the edge of it, where we had lunch and tea. The forest, like most of those in Central Sweden, was mainly of pine, carpeted by a rich growth of bilberry and broken here and there by flowery clearings in which the tall thistles were very attractive to butterflies. We had hardly entered it when my friend made the first exciting capture—*Plebeius optilete*, Knoch, flying over its food-plant, bilberry; but this species was scarce, and only three or four more were taken later. In the first clearing, Fritillaries were everywhere. *A. euphrosyne* was worn out, but there were great numbers of small, strongly marked *A. selene*, Schiff., and we were pleased to find many *A. ino*, Rott., which was, indeed, the dominant Fritillary. A few *A. aglaia*, L., and *A. cydippe*, L., were caught, with difficulty except when they paused on the thistles, and *Melitaea athalia*, Rott., was just emerging and in perfect condition. The next thrill was provided by a flashing blue *Polyommatus amandus*, Schn., and by several *Plebeius idas*, L.; but neither was common. Indeed, it was remarkable that here none of the "Blues" appeared to be at all gregarious, but were scattered in ones and twos over a wide area. Among the Browns, the commonest was *Coenonympha arcania*, L., which was far more numerous than *C. pamphilus*, L.; but there were also many *A. hyperanthus*, L., *M. jurtina*, L., and *P. maera*, L. The only Skipper to be seen in the forest was *O. venata*, but *Hesperia comma*, L., was to be seen just outside it.

Mr Petersen told us that *Parnassius apollo*, L., was occasionally seen in the fields near his farm, but it did not welcome us that day. But the rough ground on the edge of the forest gave several other notable species—a worn female of *Lycaena hippothoe*, L., two fresh *L. virescens*, L., a *P. semiargus*, Rott., and a couple of *Maculinea arion*, L., disturbed by Mr Riley from a thyme-covered ant-hill, besides many *P. napi* and *A. urticae*. We were, however, increasingly hampered by intermittent cloud, which finally covered the sky entirely about 4 o'clock. Cloud was more serious than it would have been at home; for we soon found that no Swedish butterflies will move at all except in bright sunshine. Even *A. hyperanthus*, which in England often flies in gentle rain, disappeared completely as soon as the sun was covered. Even so, between us we took twenty-four species of butterflies that day, including nine which are not now to be found in Britain. Dr Petersen told us that the total butterfly fauna of Sweden numbers about 115 species, but this includes a number which are found only as occasional visitors in the extreme south, and nearly a score which are purely Arctic. The fauna of Central Sweden is thus not much greater than that of Southern England.

A particular interest in collecting at Bergsbrunna is that it is the country of Linnaeus. He owned and occasionally inhabited the farm where we lunched, and most of the butterflies we saw owe their names to him. We could therefore be pretty sure that our captures were of the typical forms.

R. F. BRETHERTON.

Ottershaw Cottage, Ottershaw,
Surrey, 30th July 1950.

CURRENT NOTES.

COLIAS HYALE AT SWANAGE.—On Friday, August 4th, walking through a rough meadow near the sea 1 ♂ and 2 ♀ ♀ *C. hyale* were observed, they were slightly worn; also 5 *C. croceus* ♂ ♂ in the same field.

On August 5th, in the ravine by Anvil Point Lighthouse, between 12 noon and 2 p.m., 35 *C. croceus* passed me flying to the N.W., they all looked quite fresh and appeared strong on the wing.—LEONARD TATCHELL, Swanage, 7/8/50.

WE have received from Messrs Frederick Warne & Co., Ltd., of 1 Bedford Court, Strand, a copy of their Wayside and Woodland catalogue which has been out of print for a number of years. This attractive 48 page catalogue of Nature Books has been completely revised and brought up to date. It contains full and detailed information on the famous and beautifully illustrated Wayside and Woodland Series, Wayside Pocket Guides, Observer's Pocket Series and other nature books.

It is to be hoped that all of our subscribers will note the new address of Mr Andrews for all business letters and for subscriptions. Recently one of our subscribers wrote asking a number of queries, every detail of which was on the cover of the current number of the magazine.

OPUSCULA ENTOMOLOGICA, heft 2 (1950), has been received. It contains an article on the Lep. *Stigmella minor* (*Tineina*) which is illustrated by many text figures of the larva and of their food plant. This Swedish magazine frequently has articles in English.

THE Proceedings of the Society, part 4 of Vol. III, just issued, contain an interesting article, "Some Notes on the Flower Preferences of the Butterflies," by A. H. Turner, F.Z.S., F.R.E.S., a record patiently carried on for a considerable period. An account is given of the 6th Congress of British Entomologists at Nottingham, with a page photograph of those present at one of the gatherings.

THE Transactions of the Society for British Entomology, Vol. X, Pt. 2, contains "An Introduction to the Natural History of British Crane-flies" now treated as Hymenoptera (Symphyta). It comprises about 150 pages with some curious figures, by Robert B. Benson, M.A., F.R.E.S. We would be pleased if one of our readers with a knowledge of this group would send us a review.

THE Annual Report of the Smithsonian Institute of the United States of America for 1948 has recently been issued. It contains a record of research and educational work and of additions to the museums, but the greater part of the report for 1948 is the reprinting of the most original and advanced papers on the sciences, physical, natural, and metrological and economic, published during the year. The illustrations needed are also reproduced. This year there were no papers on entomology considered worthy of publication, which is unusual. The report of the Institution is contained in about 50 pages while some 300 pages are devoted to the various reprinted papers.

ZTS. WIEN ENT. GES., LXI (35th year), vi.1950, contains a paper by H. Kautz (pp. 42-50), on the yellow forms of *Pieris napi*: those dealt with are *flava*, Kane; *sulphurea*, Schöyen; *flavicans*, Müller; *citronea*, Frohawk; and *hibernica*, Schmidt. In the same part H. Wittstadt deals (pp. 81-87) with sexual scents in Lepidoptera.—T. BAINBRIGGE FLETCHER, 30.vii.1950.

Two species of moths are introduced to the British List in the *Entomologist* for August (Vol. LXXXIII, No. 1047: published 27.vii.1950). The first is *Tinea columbariella*, Wocke, 1877, noted by I. D. Bradley (pp. 169-172, 4 figs. [♂♀ genitalia]) as having been bred at Slough from larvae found in nests of the House-Sparrow. As its name implies, it was originally found in dove-cots in Germany. It is very like *T. pellionella* (which itself is very variable in colour and size) but with forewing more rounded, unicolorous dully shining yellow-brown without markings or at most with a dark dot on the discoidal. It will probably be found to occur in other birds' nests.

The second species is *Noctua florida*, Schmidt, 1859, which, incidentally, has already been noted as from "England" by Hering, *Schmett. Mitt. Europ.*, p. 414 (1932), although why Hering placed England in brackets I do not know. Dr Cockayne now records it (pp. 173-174) from Askham Bog, Yorkshire, under the generic name *Diarsia*, Hübner. Admittedly, the limits of those Noctuid genera are vague and almost all authors differ in their usage: thus, for the group containing *dahlii*, Hübner (genotype of *Diarsia*) Meyrick uses *Graphiphora*, and Hering and Lederer use *Agrotis*, all three authors including therein as congeneric *pronuba*, Linn. (genotype of *Noctua*, Linn., 1758): therefore, for the moment, I refer to it as *Noctua florida*. It is much like *rubi*, Vieweg. but is larger, paler, always less reddish and more yellowish-brown with more distinct markings: it is found in damp places (marshes, water-meadows) towards the end of June, being single-brooded, whilst *rubi* has two broods. It will doubtless be found in other localities now that attention is directed to it. Dr Cockayne states that the forms *flava*, Walker, and *ochracea*, Walker (*Ent. Rec.*, XIV, 171: 1902) are forms of *florida* and not of *rubi*.—T. BAINBRIGGE FLETCHER, 30.vii.1950.

THE Netherlands Journal, *Entomologische Berichten*, i.e., Proceedings Report, has recently published a general index for the period 1946-1949, some 30 pps.

PART 3 of Vol. III of the *Proceedings of the Society of British Entomology*. Not only does the number contain the usual record in the study of Natural History, but it has an expression of sorrow for the loss of our great friend and helper in biological study, the late William Fassnidge, M.A., F.R.E.S. He was a lepidopterist of skill and acquired knowledge, but he was also a good all-round linguist. Personally, I feel his loss.

REPORTS are wanted of the early or late appearance of many of our regular Lepidoptera; of the "Whites" I have seen but odd ones—*G. rhamni*, 2 males and one female; quantities of Burnet moths reported chiefly the five-spotted *Z. trifolii*. Of larvae I have not seen any nor have leaves of fruit trees been attacked in my garden.

Hy. J.T.

THE Proceedings of the French Entomological Society, *Bulletin Societe Ent. de France*, with the proceedings of the meetings, come out quite regularly. No. 4 has just appeared.

THE Swedish *Entomologisk Tidskrift*, part 1, for 1950 has just appeared; it contains 96 pp. of matter, with a few illustrations.

TRIXOSCELIS MARGINELLA (FLN.) (DIPT., HELOMYZIDAE) IN SURREY.—When I wrote of my collecting of Helomyzidae, 1947, *Ent. Record*, lix: 15-17, "Notes on the Helomyzidae (Diptera)," I had not found any species of the sub-family Trixoscelinae. On 25th June 1950, I captured my first specimen, a male *Trixoscelis marginella* (Fln.) on my veranda on 27th July 1947, and which, according to Mr Collin, *op. cit.*, and Mr C. H. Wallace Pugh, 1947, *Ent. Record*, lix: 46, is not uncommon on sandy coasts.—L. PARMENTER, 94 Fairlands Avenue, Thornton Heath, here in Thornton Heath, Surrey. It was easily identified with the aid of Mr J. E. Collin's excellent key, 1943, *Ent. Mon. Mag.*, lxxix: 249-251, where it will be remembered he regarded it as a coastal species, having taken it at Waxham, Norfolk, and near Worlington, Suffolk, and mentioned a long series taken by Mr J. J. F. X. King at Gailes, Ayrshire, in June 1912. I had not been to the coast in June. It is just possible, however, that it may have been brought home in a neighbour's car and wandered into my garden.

Thanks to Mr H. R. Last, who in 1947 gave me a small collection of Diptera he had made, I have been able to compare my specimen with one of *Trixoscelis obscurella* (Fln.) which he found at Greatstone, Kent, Surrey, 3/7/50.

CHANCES AND CHANGES.—A short time ago I received a notice from the Customs authorities in Istanbul that a parcel of books had arrived for me by parcels post. I gave a deep sigh, as I knew that meant tedious formalities, so was glad to enlist the services of a business man, whose office was near the Customs and who had the necessary organisation.

A few days later he telephoned me that the books, which were declared as Scientific Works and sent by the British Museum, had been impounded by the police as pornographic literature.

Feeling that the reputation not only of myself but of the British Museum was at stake, I reacted vigorously and at last, after more than ten days comings and goings and the signing of numerous documents and production of numerous certificates, I have received the precious works, which almost required a lorry for their delivery.

It was like a message from a bygone age that I saw, with eager curiosity, the title. It was Bands 3, 4 and 5 of the Transactions of the 7th International Congress of Entomology, held in Berlin. To my very great disappointment, I had not been able to attend as I did not receive the necessary documents until after the Congress was over.—**MALCOLM BURR.**

CURRENT NOTES AND COLLECTING NOTES.—Will correspondents please let me have more Notes for insertion. As soon as possible please.—**HY. J. T.**

REVIEW.

The Royal Entomological Society of London is issuing a series of octavo volumes under the title *Handbook for the Identification of British Insects*. Among those already published are the part 10, Odonata; part 9, Ephemeroptera; part 6, Plecoptera; part 5, Dermaptera and Orthoptera, etc.

Two of these parts belonging to vol. 1 both arranged by D. E. Kimmins, part 6, the Plecoptera, and part 9, Ephemeroptera.

Each part begins with a short introduction and an enlarged figure typical of the order. In the Plecoptera, 12 pages out of 16 are either wholly filled or mainly filled with most carefully drawn diagrammatic figures necessary as a base for the text.

The Ephemeroptera are dealt with in the same thorough careful way but with rather more text.

There is lying on my desk the part 2 of the Diptera; part 1 has already been published as a portion of vol. IX.

Part 2 contains a series of families of Diptera belonging to the Nemocera group, of which the best one commonly known is the "daddy-long-legs" Tipulidae. It was arranged by Paul Freeman and contains families of the Nemocera group. There are 216 pages and the illustrations made up of details extremely well executed and annotated. About a third of the pages are wholly or largely devoted to diagrams; the families recognised in the grouping are:—Tipulidae, Trichopteridae, Anisopodidae, Ptychopteridae, Psychodidae, Culicidae, Chironomidae.

REFERENCE.

1938 F. W. British Short-palpied Crane flies. Soc. Brit Ent.
(The above reference is given in dealing with the Trichoptera).
There are only three pages of text.

It seems that either a list of species should be added to the text of each family or that the reference should be made to some existing reliable list.—H. J. T.

A LIST OF BUTTERFLIES AND MOTHS (MACRO LEPIDOPTERA) OCCURRING IN THE NEIGHBOURHOOD OF ASHFORD, KENT. By E. Scott, B.A., M.D. Published by Messrs Headley Brothers, at Ashford, Kent, and 109 Kingsway, London, W.C.2. Price, Six Shillings.

This excellent little volume was first issued in 1936. This revision records many additions and is brought up to date, the latest addition being a *Biston hirtaria* taken early this year. The very varied area of down, woodland, valley, and farm land is noted and a very useful map shows the "lay of the land." The genuine lover of nature is assisted but the mere collector is not encouraged. The author deserves to be congratulated on this most useful work.

H. J. T.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Anttopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; *Etudes les Mouches Parasites*, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; *A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids*, 1923. and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

For Disposal—A set collection of 885 specimens of Pyralids, including Galleridae, Chilidae, Crambidae, Phycidae and Pterophoridae. Am quite prepared to almost give them away but would exchange for British Lepidoptera of other families. **Wanted**—British Bombyces, Noctuids and Geometrids, etc., in exchange for specimens of the same families—Desiderata lists exchanged.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted—Specimens of all the British Hepialidae (Swifts). Have many duplicates to offer in exchange, all families, and invite lists of wants.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.*

Duplicates.—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). Desiderata.—Numerous to renew.—*L. H. Bonaparte Wyse, Corballymore, Co. Waterford.*

For Sale—Tutt's "Hints for the Field Lepidopterist," 3 volumes.—*W. J. Watts, 42 Bramerton Road, Beckenham, Kent.*

Wanted.—Urgently required for laboratory work this year: larvae (any stadium), or fertile eggs, of *Stauropus fagi*, L. Any reasonable price will be paid.—*P. B. M. Allan, 4 Windhill, Bishop's Stortford, Herts.*

Communications received :—O. Querci, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopulo, R. J. R. Levett, E. C. S. Blathwayt, E. P. Wiltshire, A. E. Wright.

All Communications should be addressed to the Acting Editor, H. J. TURNER, "Latemar," 25 West Drive, Cheam, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: Oct. 4th, Nov. 1st. at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: Sept. 27th, Oct. 11th. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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No. 10

OCTOBER 1950

ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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**RECORDS OF LEPIDOPTERA FROM AN AREA IN BERKSHIRE
IN 1949.**

The area under observation comprises some 80 acres at the Imperial College Field Station, Silwood Park, Berkshire. Approximately half of this area consists of deciduous woodland with conifer islands; the other half being grass and parkland. Observations cover the whole of the year 1949. In all, 296 species of Macro-Lepidoptera have been recorded; from June 13th until the end of the year counts were made each night from a light trap. As knowledge of the distribution of most of the insects on the enclosed list is sufficiently complete, only specific records of occurrences of the less common species are noted here; the first date on which each species was recorded is also noted for most species. It should be added that this has been by no means a full-time study, and except for light trap records, collecting has been purely casual. The classification of Kloet and Hincks (1945) has been followed in the following list:—

HEPIALIDAE.

- Hepialus lupulinus* (L.), 22/5.
- Hepialus fusconebulosus* (L.), 23/5.
- Hepialus sylvinus* (L.), 14/8.
- Hepialus humuli* (L.), 8/7.

ARCTIIDAE.

- Eilema lurideola* (Zinck.), 2/7.
- Eilema griseola* (Hb.), one only, v. *flava*, at light on 28/6.
- Cybosia mesomella* (L.), 18/6.
- Miltochrista miniata* (Forst.), 29/6.
- Hypocrita jacobaeae* (L.), 15/6.
- Phragmatobia fuliginosa* (L.), 16/7.
- Spilosoma lutea* (Hufn.), 30/5.
- Spilosoma lubricipeda* (L.), 16/5.
- Arctia caja* (L.), 21/7.

CYMBIDAE.

- (*Pseudoips bicolorana* (Fuessly).)
- Bena prasinana* (L.), 17/6.

CARADRINIDAE.

- (*Apatele aceris* (L.))
- (*Apatele rumicis* (L.))
- Colocasia coryli* (L.), 21/7.
- Cryphia perla* (Schiff.), 22/7.
- Amphipyra pyramidea* (L.), 25/8.
- Gortyna flavago* (Schiff.), 24/8.
- Luperina testacea* (Schiff.), 3/8.
- Rusina umbratica* (Goeze), 15/6.
- Coenobia rufa* (Haw.), 26/7.
- Nonagria typhae* (Thunberg), 16/8.
- Panemeria tenebrata* (Scop.), 4/5.
- Cosmia affinis* (L.), 15/8.
- Cosmia trapezina* (L.), 7/7.

- Curadrina morphaeus* (Hufn.), 15/6.
Caradrina alsines (Brahm.), 25/6.
Mormo maura (L.), a single example at light on 21/7.
Dicycla oo (L.), a single example at light on 6/7.
Rhizedra lutosa (Hb.), 22/9.
Arenostola pygmina (Haw.), 25/8.
Petilampa minima (Haw.), 20/6.
Meristis trigrammica (Hufn.), 13/6.
Thalpophila matura (Hufn.), 9/7.
Phlogophora meticulosa (L.), 11/5.
Eplexia lucipara (L.), 21/7.
Dypterygia scabriuscula (L.), 9/6.
Xylophasia remissa (Hb.), 23/6.
Xylophasia monoglypha (Hufn.), 5/7.
Apamea sordens (Hufn.), 31/5.
Apamea unanimis (Hb.), 5/8.
Celaena secalis (L.), 21/7.
Hydræcia micacea (Esper.), 28/7.
Hydræcia oculea (L.), 11/7.
Miana literosa (Haw.), 3/8.
Procus furunculus (Schiff.), 30/6.
Procus strigilis (Clerck), 13/6.
Procus fasciuncula (Haw.), 27/6.
Agrotis segetum (Schiff.), 11/6, two broods: June and August-September.
Agrotis clavis (Hufn.), 21/6.
Agrotis puta (Hb.), 19/5, two broods: May and July-August, and possibly a third, as insects occurred in October.
Agrotis ypsilon (von. Rott.), a single example at light on 24/9.
Agrotis exclamationis (L.), 31/5.
Lycophotia porphyrea (Schiff.), 8/6.
Ochropleura plecta (L.), 1/6.
Amathes castanea (Esper.), one only on 25/8.
Amathes c-nigrum (L.), 19/5, two broods: May-June and August-October.
Amathes triangulum (Hufn.), 4/7.
Amathes xanthographa (Schiff.), 13/8.
Amathes umbrosa (Hb.), 9/8.
Amathes depuncta (L.), 22/7.
Diarsia festiva (Schiff.), 13/6.
Diarsia rubi (Vieweg.), 13/6, two broods: June and August.
Triphaena pronuba (L.), 16/6, two broods: June and August-September.
Triphaena janthina (Schiff.), 6/8.
Axylia putris (L.), 27/6.
Lampra fimbriata (von Schrek), 27/8.
Cerastis rubricosa (Schiff.), 15/4.
Brachionycha sphinx (Hufn.), 16/11.
Aporophyla lutulenta (Schiff.), 12/9.
Conistra ligula (Esper.), 8/10.
Conistra vaccinii (L.), 13/1. Taken in every month except May, June, July and August.

- Anchoscelis lunosa* (Haw.), 13/9.
Anchoscelis helvola (L.), 26/9.
Anchoscelis litura (L.), 17/9.
Atethmia centrago (Haw.), 22/8.
Tiliacea citrago (L.), 25/9.
Tiliacea aurago (Schiff.), 21/9.
Citria lutea (Stroem.), 25/9.
Cirrhia fulvago (L.), 29/8.
Cirrhia gilvago (Schiff.), 16/9.
Agrochola circellaris (Hufn.), 27/9.
Agrochola lychnidis (Schiff.), 12/9.
Agrochola macilenta (Hb.), 22/9.
Agrochola lota (Clerck), 28/9.
Parastichtis ypsilon (Schiff.), 31/5.
Eupsilia transversa (Hufn.), 20/3, the first of the autumn brood was taken on 21/9.
Allophyes oxyacanthalae (L.), 17/10.
Griposia aprilina (L.), 12/10.
Bombycia viminalis (Fabr.), 31/5.
Eumichtis adusta (Esper.), 18/5.
Dryobota protea (Schiff.), 13/9.
Leucania impura (Hb.), 24/7.
Leucania pallens (L.), 25/6.
Leucania lythargyria (Esper.), 25/6.
Leucania comma (L.), 14/6.
Mythimna turca (L.), 16/6, and two others at light on 20/6 and 25/6.
Orthosia incerta (Hufn.), 20/3.
Orthosia miniosa (Schiff.), one only at light on 15/4.
Orthosia cruda (Schiff.), 22/3, the first of the autumn brood was taken on 24/8.
Orthosia gothica (L.), 25/6.
Charaeas graminis (L.), 25/7.
Tholera popularis (Fabr.), 6/8.
Tholera cespitis (Schiff.), 25/7.
Panolis griseovariegata (Goeze), 16/4.
Hadena conspersa (Schiff.), 8/6.
Hecatera serena (Schiff.), 21/6.
Hecatera chenopodii (Schiff.), 22/7.
Lacanobia thalassina (Hufn.), 16/5.
Diataraxia oleracea (L.), 15/6.
Ceramica pisi (L.), 13/6.
Mamestra brassicae (L.), 16/6.
Melananchra persicariae (L.), 30/6.

PLUSIIDAE.

- Parascotia fuliginaria* (L.), three specimens were taken at light on 11/7, 5/8 and 28/8. (Dr. O. W. Richards reported this species from two different localities in 1947, feeding as larvae on fungus on wood at Silwood Park).
Zanclognatha tarsipennalis (Treit.), 27/6.
Zanclognatha nemoralis (Fabr.), 21/6.

- Hypena rostralis* (L.), a single specimen at light on 17/6.
Hypena proboscidalis (L.), 17/6.
Scoliopteryx libatrix (L.), 23/11.
Catocala nupta (L.), 22/8.
Euclidimera mi (Clerck), 11/5.
Ectypa glyphica (L.), 16/5.
Jaspidia fasciana (L.), 28/6, and thereafter several at light.
Phytometra viridaria (Clerck), 23/7.
Rivula sericealis (Seop.), 26/6.
Plusia chrysitis (L.), 13/6.
Plusia gamma (L.), 15/8.
Abrostola tripartita (Hufn.), 25/5.
Episema caeruleocephala (L.), 14/10.

LYMANTRIIDAE.

- Orgyia antiqua* (L.).
Dasychira pudibunda (L.), 10/5.
Euproctis chrysorrhoea (L.), 30/6.
Lymantria monacha (L.), one at light on 25/8.

STERRHIDAE.

- Sterrhha virgularia* (Hb.), 4/7.
Sterrhha sylvestraria (Hb.), 28/6.
Sterrhha subsericeata (Haw.), 18/6.
Sterrhha aversata (L.), 20/6.
Sterrhha biselata (Hufn.), 22/7.
Sterrhha dimidiata (Hufn.), 25/6.
Sterrhha trigeminata (Haw.), 17/6.
Sterrhha emarginata (L.), 22/7.
Scopula remutaria (Hb.), 21/5.
Scopula imitaria (Hb.), 21/7.
Cosymbia punctaria (L.), 16/5.
Cosymbia trilinearia (Bork.), 30/6.
Calothysanis amata (L.), 30/6, two broods: June and September.

(To be continued.)

ANTIGASTRA CATALAUNALIS IN GLOUCESTERSHIRE.

By T. BAINBRIGGE FLETCHER.

On 23rd August 1950 I took a fresh specimen of *Antigastra catalaunalis*, Dup. 1832, in the garden here at Down Hatherley, halfway between Gloucester City and Cheltenham. It was disturbed from a flower-bed and settled on a leaf of *Lycium chinense*, from which it was easily boxed. It was in such good condition that it seemed possible that it was bred locally, but repeated search on every suitable evening since then has failed to discover any further example.

Meyrick (*Rev. Handb.*, pp. 421-422: 8.iii, 1928) says: "Kent, a rare immigrant only; S. Europe, S. Asia, Malaysia, Africa." I do not know whether it has since been found in England outside of Kent, but this is certainly a new record for Gloucestershire. How it got here, so far from the South Coast, is a problem. To be sure, Gloucester City, some five miles away, is a seaport, but has little direct connection with South

European ports. Yet *Dryadaula pactolia*, Meyr., has found its way to Gloucester from New Zealand. Failing introduction by shipping, I think that we must consider upper-air currents as a solution of this problem.

A. catalaunalis was first described from the vicinity of Barcelona, in Catalonia, whence its specific name, and was later found around Montpellier, in Hérault, France. Mann took it in Asia Minor and Zeller found it "in great numbers" on a piece of fallow-land, that was completely covered by *Scabiosa columbaria*, some five miles to the north of Narni, in the Roman Campagna, and he has an interesting note on its habits (*Isis*, XL, 579: 1847); he says that it does not fly far or fast, always low down, and that "the weather being overcast, it settled at the most half a foot above the ground amongst numerous stems on a twig or a stalk, always so that the underside was turned towards the light and the vivid pattern was visible." I should hardly have described the underside pattern as vivid, as it consists only of blackish spots beneath the costa, nor have I any recollection of seeing an individual with its underside turned upwards and I have taken this species in S. France (Hyères) and India: certainly my local specimen rested on a leaf with its wings stretched almost horizontally and its long legs very visible, as it is shown on Tab. 37, f. 10, of my book on South Indian Insects (1914).

As regards foodplants, there are several records. In S. India it is sometimes a pest of Gingelly (*Sesamum indicum*, Pedaliaceae), and I have described and figured all the stages of the life-history in *South Indian Insects*, p. 441, Tab. xxxvii (1914). Chrétien (*Ann. Soc. Ent. France*, LXXXV, 453-454: 1917) records it from Biskra and Gafsa, in Algeria, the moth in iii, iv, v and again in x, xi, the larva in xi, xii, v, vi on *Linaria fruticosa*, Desf., and *Anarrhinum brevifolium*, Cons. Lhomme (*Cat. Lep. France Belg.*, II, 121: 1935) notes it as a tropical species found in France in some places on the Mediterranean and Atlantic seaboard and "larva on *Linaria spuria*, Mill., *Antirrhinum latifolium*, mining the leaves, attached by a few silken threads, viii-x (P. Chrétien)." As both these records by Chrétien mention different plants, I thought that there might be some error and referred this to Mr H. K. Airy Shaw, of the Herbarium, Kew, who kindly writes that "the genus *Anarrhinum* is a real one, but it is closely allied to both *Antirrhinum* and *Linaria*. (The nearest British plant is *Chaenorhinum minus* (L.), Lange, the small toadflax; see *Flora Glos.*, 359.) The South European *Anarrhinum bellidifolium* (L.), Desf., is occasionally grown in gardens. *A. brevifolium*, Coss., seems to be almost confined to Tunis. *Antirrhinum latifolium*, D.C., is closely related to the garden snapdragon, *A. majus*, L., and is often treated as a subspecies of it." *Linaria spuria* is now known as *Kickxia spuria* (see *Flora Glos.*, p. 355: 1948). So we have in England several foodplants on which *A. catalaunalis* might occur in this country.

Down Hatherley, Glos., 7.ix.50.

COLLECTING NOTES.

ETHMIA BIPUNCTELLA, FABR.—This striking moth is apparently spreading its range, and it is of interest that two specimens were taken at Chipstead, Surrey, at the meeting of the South London Entomological

Society on 19th August. They were both taken at rest on their food-plant, *Echium vulgare*, and fertile ova were obtained. It might be mentioned that both this species and its congener *Ethmia terminella*, Fletcher (*sexpunctella*, Hüb.) are well established in Kent.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

ELACHISTA MAGNIFICELLA, TENGST.—Towards the end of June, I was invited to stay with Canon and Mrs T. G. Edwards, who were on holiday at Bucks Mills, North Devon. The prospect of collecting lepidoptera on what was to me new ground appealed to me greatly, and we certainly turned up some interesting species together. On 24th June we found larvae of the above species in leaves of *Luzula sylvatica*. A number were found at Bucks Mills, and later the larvae were found in incredible numbers along the three-mile lovely Hobby Drive walk leading to Clovelly. One could collect a hundred mined leaves easily in an area a few yards square. The moths emerged from 22nd July to end of month.

I was first introduced to this species by Mr L. T. Ford at Bexley, where the larvae feed on *Luzula pilosa*, a much smaller-leaved plant. The larvae feed internally in the leaves, and the feeding place is betrayed by a whitish "blister" from one to three inches long visible on upper surface of the rush. A peculiar difference between the feeding habits on the two plants was pointed out by Mr Ford. Whereas the mines on *Luzula pilosa* were more or less central or towards base of leaf, those on the *Luzula sylvatica* were all at the tip of the leaf, the larvae feeding downwards. As the tip of the leaves of *L. sylvatica* usually hang over, the whitish mine is very noticeable—in any case to a keen worker looking for it. The mine on *L. pilosa* is much more difficult to find. Owing to the different habit in feeding of the larvae on the two species of *Luzula*, specimens were sent to Mr J. D. Bradley at the British Museum, who confirmed that the species was *E. magnificella*. It would be interesting to know if this species occurs on *Luzula sylvatica* in other districts in such extreme abundance.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

DATE OF APPEARANCE OF HEPIALUS SYLVINUS.—As regards the dates of appearance on the wing of *Hepialus sylvinus* there seems to be considerable difference of opinion amongst the authorities. Stephens (*Ill. Brit. Ent., Haust.*, II, 8: 1.x.1828) says "in August and September." Stainton (*Manual*, I, 109: 2.vii.1856) says "at the end of July and in August." Newman (*Brit. Moths*, p. 20: ii, 1867) says "in July." South (*Moths Brit. Is.*, II, 361: 1909) says "in late July and in August." Meyrick (*Rev. Handb.*, p. 869: 8.iii.1928) tells us "June to September." In my experience in Gloucestershire, it flies in the second half of August (once on 2.viii) and the first week of September. What is the experience of other collectors? Has anyone found it in July, let alone June?

Some authors treat the generic name *Hepialus* as feminine, but I do not know why? Staudinger (*Cat. Pal. Lep.*, pp. 410-411: 1901) wobbled and wrote *sylvina*, *fusconebulosa*, *lupulina* and *hecta* (in feminine) but *amasinus*, *nubifer*, *varius*, *nebulosus*, *macilentus*, etc. (in masculine). Fabricius, who was the author of the name, considered it to be masculine and presumably he knew his own intentions.—T. BAINBRIGGE FLETCHER, 7.ix.1950.

FORMICA SANGUINEA (HYM.) IN THE FOREST OF DEAN.—When visiting the Forest of Dean, 10.vi.50, two small colonies of the ant, *Formica sanguinea*, were found on the south slopes of an old tip near the road between Speechhouse and Coleford (West Glos.). The workers were all small in size and the numbers of auxiliaries (*F. fusca*) were few.

It is possible that other colonies were to be found in the neighbourhood, but the small size of nests and workers suggested that this species may be of recent introduction to the area. The nearest known locality is Trelleck Common (Mon.) which is barely eight miles distant in a direct line. It is not unreasonable to suppose that fertile *F. sanguinea* females may somehow have found their way from there.

The only other ant record of note was *Myrmica sabuleti* at Seven Sisters, a new record for Hereford.—C. A. C.

CURRENT NOTES.

OUR scientific names are sometimes a strain upon English printers, but to Turkish compositors they are a complete mystery. Under the heading "The War against Noxious Insects," the paper *La République*, published in Istanbul in French, informs us that the creature's name is "ourygafterintegrifepe." That is surely enough to terrify any countryman and the damage it does must be simply enormous. The same news appeared in another local paper in French, *Le Journal d'Orient*, which, however, gives a clue by splitting the word, so we get *Ourygaffer integrifope*, which a little ingenuity elucidates as *Eurygaster integripes*. This is a Pentatomid bug which does considerable damage to wheat and is reported as a pest from time to time in south eastern Turkey and Syria. The local folk call it *sunni*, an Arabic name. According to Bodenheimer, it is addicted to mass migration to the mountains in the summer, lying in a semi-torpid condition in summer and winter.—M. B.

IT has been my great pleasure this morning to have received pages 809-904 of Leon Lhomme's *Catalogue des Microlepidopteres de France et de Belgique*. These complete the *Ethmiidae*, *Hyponomeutidae* and *Elachistidae* and cover the first sixty-four species of *Eupista* (oh how I regret the passing of Coleophora), covering 195 species in all.

When I saw Monsieur Le Charles in the summer, he informed me that the manuscript of the remainder of this great work was in the hands of Monsieur Le Marchand for revision so that before printing it could be brought right up to date, and the present six fascicules represent the first portion of this revision. It is to be hoped that the balance of this work may not now be very long in appearing, for it has an interest far beyond the boundaries of the countries named in the title. I understand that support for this catalogue from the United Kingdom is very poor, and M. Le Charles, 22 Avenue des Gobelins, Paris Ve, will be glad to furnish details to anyone who may be interested.
—S. N. A. JACOBS, 54 Hayes Lane, Bromley, 19.ix.50.

REVIEWS.

From the Amateur Entomologists' Society, 1 West Ham Lane, London, E.15, we have received a large sheet printed on one side with a

Prospectus of the Society, and on the other with an "Entomology Wall Chart." This has been sent "for review," but a review is rather difficult as it is not clear with what idea this Wall Chart has been prepared. It is not exclusively for British collectors, as it includes such exotic groups as the Termites and Grylloblattids; on the other hand, it excludes various exotic groups. Some of the groups cited seem to be dealt with in a decidedly restricted way, whilst others are unduly extended: in fact, there seems to be a lack of balance. In the *Apterygota* the Campodeoidea (as we have called them) are named Diplura, which include the Campodeidae and the Japygidae. The "Thysanura" presumably include the Machilidae, which seem to constitute a valid Order (Machiloidea). The Orthoptera are said to include "four superfamilies," but here again we should certainly regard the Blattoidea, Mantoida, Dermaptera, Phasmoida and Orthoptera as of ordinal rank. The "Acridoidea" of this Chart (our Orthoptera) are credited with "three families"; we should recognise at least seven—Gryllacridae, Tettigoniidae, Gryllidae, Gryllotalpidae, Tridactylidae, Acrididae (Tettigidae) and Acrididae (Locustidae). The Zoraptera seem to be distinct from the Psocina. The Odonata are subdivided into Anisoptera and Zygoptera, but we do not find the Anisozygoptera (Epiophlebiidae). The Mecoptera include the exotic Bittacidae. The Lepidoptera, we are told, have "the wings covered in [with] scales . . . and the body is often similarly clothed"; has the compiler of this Chart ever seen a Lepidopteron with a completely naked body? The Aphaniptera are often known as Siphonaptera.

We fully recognize the difficulties of constructing such a Chart—we have done it ourselves, in *Tentative Keys*, 1925—and there are so many things to take into consideration that probably no two people would agree in every detail, so we hope that our few criticisms will be received kindly by the unstated author.—T. BAINBRIGGE FLETCHER, 24.viii.1950.

BIOLOGY AND SYSTEMATICS OF PLUME MOTHS OF THE GENUS *PLATYPTILIA*
IN CALIFORNIA, by W. Harry Lange. (*Hilgardia*, XIX, No. 19,
pp. 561-668, 8 figs., 16 tabs.; v.1950).

Mr Lange has been working on the Californian Plume moths for several years and in this excellent paper he has given a very full account of the 22 species belonging to *Platyptilia*, of which he describes 3 new species and 4 new subspecies. Our English *P. pallidactyla*, Hw. 1811, occurs amongst *Achillea millefolium*, as it does with us. *P. pica*, Wlsm. 1880, is one of the most interesting and, owing to its variation, the most difficult of the species dealt with, so that it is represented by no less than five subspecies—*calisequoiae*, Lange 1950; *marina*, Lange 1950; *sierrae*, Lange 1950; *monticola*, Grinnell 1908; and *crataea*, Fletcher 1940, of which the last was formerly confused with the European *acanthodactyla*, Hb. The pied examples of *P. punctidactyla*, Hw. 1811 (*cosmodactyla*, Hb.), found in Scotland, are not *P. pica*, Wlsm., and Meyrick's remark that "it is probable that the true *P. pica* is itself only a geographical form of *P. cosmodactyla*" (*Rev. Handb.*, pp. 451-452: 1928) is quite incorrect. The illustrations in this paper are excellent.—T. BAINBRIGGE FLETCHER, 30.viii.1950.

Euclidia, Ochs., *mi*, Clerck.

Euclidia, Ochs., *Schmett. Noct.*, V, 3 (1826), p. 388.

Gonospileia, Hb., *Verz.* (1827), p. 281.

Euclidimera, Hamps., *Lep. Phal.*, XIII (1913), p. 48.

mi, Clerck, *Icones*.

Drdt.-Stz., *Pal. Noct. Supp.*, III, p. 220 (1935), recorded two fresh forms, p. 220, (1) ab. *insulata*, Klem., "the lobe of the post-median spot on the forewings pointing towards the anal angle, is widely interrupted by white." ab. *vitiosa*, Wehrli, shows a reduced middle area of forewing in which the outer transverse stripe extends to its inner margin in an "S" shape, so that it forms only one lobe at its lower end emitting white ray-like extinctions towards the inner margin.

Warr.-Stz., *Pal. Noct.*, (1913), p. 343, after dealing with *mi*, Clerck, went on with the following aberrations.

(3) ab. *litterata*, Cyr. (62h), from Italy, the white is pure, the underside bluish-white, but the white spots of the upperside are restricted in size; (4) ab. *extrema*, B. Haas, (62i), from Amurland and Central Asia, the white predominates still more over the black than in *illuminata*; (5) ab. *suffusa*, Warr., (62i), from Italy, the white spaces are almost crowded out and both wings are nearly black; the underside with all the veins black and the ground colour yellowish-white; (6) ab. *explanata*, Rebel, a clear whitish-yellow form from Bohemia; (7) *aurantiaca*, Warr. (=ab. 3, Hamps., from Portugal), the ground colour is orange-yellow.

G. mi, Clerck, (1759), *Icones*, plt. 2, fig. 8.

ab. *litterata*, Cyr., (1892), *Nap. Ent.*, I, plt. 2, fig. 1.

ab. *ochrea*, Tutt, (1892), *Brit. Noct.*, IV, p. 58.

ab. *explanata*, Rbl., (1908), *Verhand. zoo.-bot. Ges. Wien*, LVIII, p. 271.

ab. *insulata*, Klem., (1912), *Ent. Russ.*

ab. *illuminata*, Warr.-Stz., (1913), *Pal. Noct.*, III, 343.

ab. *suffusa*, Warr.-Stz., (1913), *l.c.*

ab. *aurantiaca*, Warr.-Stz., (1913), *l.c.*

ab. *extrema*, Bang. Haas., (1918), *Iris*, XXIV, p. 271.

ab. *vitiosa*, Wehrli, (1936), Drdt.-Stz., *Pal. Noct. Supp.*, III, 220.

Tutt, *Brit. Noct.*, IV, 57-8, dealt with it in a short general note. He then described the figure of *mi* given by Clerck in his *Icones* in 1759. He gave one ab. *ochrea* with the usual pale markings on the upper side fore and hindwings ochraceous (1892).

Of the variation Barrett said: "Hardly variable except in the tendency towards chocolate-brown or pale grey in the forewings and towards orange or straw colour in the hind."

The markings of the forewings are so curious and unusual that attention should be drawn to them. If looked at from the costa they form a curiously nutcracker face, whence the species has received the name of that most famous of English witches 'Mother Shipton'."

ab. *explanata*, Rbl., (1908), *Verhand. zoo.-bot. Ges. Wien*, LVIII, p. 271. [Warr.-Stz., *Pal. Noct.*, III, 343, "is a pale whitish-yellow form. Bohemia."]

ab. *insulata*, (1912), Klem., *Spraw. Kom.*, *Fizyogr.*, 46.

Drdt.-Stz. recorded and described this form, *Pal. Noct. Supp.*, III, p. 220, (1936): "The lobe of the post-median spot on the forewings pointing towards the anal angle is widely interrupted by white."

ab. *illuminata*, Warr.-Stz., (1913), *Pal. Noct.*, III, p. 343., is a paler form of the type in which the dark areas are restricted, the underside yellowish-white.

ab. *suffusa*, Warr.-Stz., *Pal. Noct.*, III, 343, (1913), plt. 62i, the white spaces are almost crowded out and both wings are nearly black. From Italy.

ab. *aurantiaca*, Warr.-Stz., (1913), *Pal. Noct.*, III, 343, (=ab. 3 Hamp.), from Portugal. The ground colour is orange-yellow.

ab. *extrema*, Bang Haas, (1918), *Macro-lepidoptera*, XXIV, p. 112, from Amurland and Central Asia. The white predominates still more over the black than in ab. *illuminata*.

ab. *vitiosa*, Wehrli, Drdt-Stz., *Supp.*, III, 220, (1936), shows a reduced middle area of forewings, in which the outer transverse stripe extends towards the inner margin in a "S" shape, so that it forms only one lobe at its lower end, emitting white ray-like extensions towards the margin. Base of hindwing brown, not white, the black central band being double as wide. Frauenfeld, Switzerland.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

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Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Anttopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; *Etudes les Mouches Parasites*, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

For Disposal—A Collection of 650 set specimens of Indian Trycaenidae, named and with full data, as a whole or in part, in two store-boxes. Would exchange for British Bombyces, Noctuids and Geometrids.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

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For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.*

Duplicates.—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). Desiderata.—Numerous to renew.—*L. H. Bonaparte Wyse, Corballymore, Co. Waterford.*

For Sale—Tutt's "Hints for the Field Lepidopterist," 3 volumes.—*W. J. Wattis, 42 Bramerton Road, Beckenham, Kent.*

Wanted.—Urgently required for laboratory work this year: larvae (any stadium), or fertile eggs, of *Stauropus fagi*, L. Any reasonable price will be paid.—*P. B. M. Allan, 4 Windhill, Bishop's Stortford, Herts.*

Communications received :—O. Querci, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopulo, R. J. R. Levett, E. C. S. Blathwayt, E. P. Wiltshire, A. E. Wright.

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MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7.: Nov. 1st, Dec. 6th. at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: Sept. 27th, Oct. 11th. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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No. 11

NOVEMBER 1950

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**RECORDS OF LEPIDOPTERA FROM AN AREA IN BERKSHIRE
IN 1949.**

Continued from page 88.

GEOMETRIDAE.

- Hemithea strigata* (Muell.), 17/6.
- Comibaena pustulata* (Hufn.), 17/6.
- Jodis lactearia* (L.), 29/6.
- Geometra papilionaria* (L.), 5/7.
- Pseudoterpnna pruinata* (Hufn.), 25/6.

HYDRIOMENIDAE.

- Trichopteryx carpinata* (Bork.), 16/4.
- Mysticoptera sexalata* (Retz.), 21/5.
- Chloroclystis coronata* (Geyer), 26/6.
- Chloroclystis rectangulata* (L.), 27/6.
- Gymnoscelis pumilata* (Hb.), 5/8.
- Eupithecia venosata* (Fabr.), 4/5.
- Eupithecia absinthiata* (Clerck), 20/6.
- Eupithecia albipunctata* (Haw.), 23/6.
- Eupithecia vulgata* (Haw.), 18/5.
- Eupithecia centaureata* (Schiff.), 16/5.
- Eupithecia icterata* (de Vill.) s. *subfulvata* (Haw.), 23/7.
- Eupithecia pulchellata* Steph., 27/6.
- Eupithecia linariata* (Schiff.), 25/6.
- Eupithecia castigata* (Hb.), 27/6.
- Eupithecia lariciata* Freyer., 13/6.
- Eupithecia virgaureata* Doubl., 27/6.
- Eupithecia nanata* (Hb.), 3/8.
- Eucymatoge scabiosata* (Bork.), 20/6.
- Chesias legatella* (Schiff.), 29/9.
- Chesias rufata* (Fabr.), 19/5.
- Anaitis plagiata* (L.), 20/8.
- Lygris mellinata* (Fabr.), 27/7.
- Epirrhoe rivata* (Hb.), 21/5.
- Epirrhoe alternata* (Muell.), 16/5, two broods: May and July-August.
- Mesotype virgata* (Hufn.), 28/7.
- Lyncometra ocellata* (L.), 22/7.
- Thera obeliscata* (Hb.), 19/8.
- Hydriomena furcata* (Thun.), 5/7.
- Dysstroma truncata* (Hufn.), 8/6, two broods: June and September-October.
- Dysstroma citrata* (L.), 20/8.
- Ecliptopera silaceata* (Schiff.), 19/5.
- Lampropteryx suffumata* (Schiff.), 16/5.
- Earophila badiata* (Schiff.), 16/4.
- Euphyia unangulata* (Haw.), 25/6.
- Euphyia bilineata* (L.), 21/7.
- Perizoma blandiata* (Schiff.), 21/5.
- Perizoma alchemillata* (L.), 23/7.

- Asthena albulata* (Hufn.), 11/6.
Operophtera brumata (L.), 13/11.
Euchoeca obliteratea (Hufn.), 21/5.
Hydrelia flammeolaria (Hufn.), 21/5.
Oporinia dilutata (Schiff.), 13/10.
Oporinia christyi Prout., 20/10.
Xanthorhoe montanata (Schiff.), 31/5.
Xanthorhoe ferrugata (Clerck), 22/5.
Xanthorhoe spadicearia (Schiff.), 16/5, two broods: May and July.
Xanthorhoe designata (Hufn.), 4/8.
Xanthorhoe fluctuata (L.), 18/5.
Calostygia olivata (Schiff.), 22/8.
Calostygia pectinataria (Knoch.), 17/5, two broods: May-June and August-September.

BREPHIDAE.

- Alsophila aescularia* (Schiff.), 26/1.

SELIDOSEMIDAE.

- Opisthograptis luteolata* (L.), 18/5.
Semiothisa liturata (Clerck), 30/5, two broods: May and July-August.
Chiasmia clathrata (L.), 15/5.
Ectropis luridata (Bork.), 30/6.
Ectropis punctulata (Schiff.), 21/5.
Ectropis bistortata (Goeze), first brood: 23/3.
Ectropis consonaria (Hb.), 5/7.
Boarmia roboraria (Schiff.), 16/5, not uncommon at light until 3/7.
Boarmia punctinalis (Scop.), 13/6.
Cleora repandata (L.), 1/7.
Cleora rhomboidaria (Schiff.), 7/7.
Bupalus piniarius (L.), 13/6.
Ematurga atomaria (L.), 22/5.
Hemerophila abruptaria (Thun.), a single belated specimen taken on 28/6.
Erannis leucophaearia (Schiff.), 16/1.
Erannis progemmaria (Hb.), 13/1.
Erannis aurantiaria (Esper.), 14/11.
Erannis defoliaria (Clerck), 16/1, first observed in the autumn on 15/10.
Phigalia pilosaria (Schiff.), 26/1.
Biston betularia (L.), 2/5.
Ligdia adustata (Schiff.), 31/7.
Lomasplilis marginata (L.), 17/6.
Bapta punctata (Fabr.), 13/6.
Lithina chlorosata (Scop.), 9/5.
Pseudopanthera macularia (L.), 11/6.
Perconia strigillaria (Hb.), 19/6.
Cabera pusaria (L.), 16/5.
Cabera exanthemata (Scop.), 18/5.
Ellopia prosapiaria (L.), 14/6.
Campaea margaritata (L.), 22/6.

- Plagodis dolabraria* (L.), 13/6.
Selenia bilunaria (Esper.), 14/4.
Selenia tetralunaria (Hufn.), 14/4.
Colotois pennaria (L.), 26/9.
Deuteronomos alniaria (L.), 29/8.
Deuteronomos erosaria (Schiff.).
Deuteronomos fuscantaria (Haw.), 22/7.
Ennomos quercinaria (Hufn.), 24/7.
Gonodontis bidentata (Clerck), 10/5.
Croccallis elinguaria (L.), 5/8.

POLYPLOCIDAE.

- Habrosyne derasa* (L.), 30/6.
Thyatira batis (L.), 20/6.
Asphalia diluta (Schiff.), 24/8.
Achlya flavicornis (L.).

SPHINGIDAE.

- Deilephila elpenor* (L.), 1/7.
Hyloicus pinastri (L.), one at light on 22/7. This would appear to be an extension of its range.
Laothoe populi (L.), 19/5; this species was frequently taken at light until 27/8.

NOTODONTIDAE.

- Notodonta dromedarius* (L.), 1/8.
Notodonta anceps (Goeze), 21/5.
Drymonia dodonaea (Schiff.), 17/5.
Pheosia gnoma (Fabr.), 1/8.
Pheosia tremula (Clerck), 13/6.
Stauropus fagi (L.), 30/6, and one other on 1/8; both at light
Pterostoma palpina (L.), 16/5.
Lophopteryx capucina (L.), 4/5.
Phalera bucephala (L.), 16/6

SATYRIDAE.

- Pararge aegeria* (L.).
Dira megera (L.), 4/5.
Eumenis semele (L.), 27/7.
Maniola tithonus (L.), 23/7.
Maniola jurtina (L.), 11/6.
Coenonympha pamphilus (L.), 11/5.
Aphantopus hyperantus (L.), 26/7.

NYMPHALIDAE.

- Argynnis euphrosyne* (L.).
Argynnis cydippe (L.).
Argynnis paphia (L.).
Argynnis aglaja (L.).
Vanessa atalanta (L.), 3/8.
Vanessa cardui (L.), 9/6.
Aglais urticae (L.), 10/4.

Polygona c-album (L.), 15/3.

Nymphalis io (L.), 9/4.

LYCAENIDAE.

Aricia agestis (Schiff.), 16/5.

Polyommatus icarus (von Rott.).

Celastrina argiolus (L.), 11/5.

Lycaena phlaeas (L.). One of two very fine melanistic varieties seen on 12/8 was taken.

(*Callophrys rubi* (L.).)

(*Thecla quercus* (L.).)

PIERIDAE.

Pieris brassicae (L.), 9/4.

Pieris rapae (L.).

Pieris napi (L.).

Euchloe cardamines (L.), 17/4.

Colias croceus (Geoff.), 23/6.

Gonepteryx rhamni (L.), 14/4.

HESPERIIDAE.

Erynnis tages (L.).

Thymelicus sylvestris (Poda), 5/7.

Augiades venata (Brm. & Grey.) s. *septentrionalis* (Verity), 11/6.

DREPANIDAE.

Cilix glaucata (Scop.), 13/6.

(*Drepana lacertinaria* (L.).)

Drepana fulcataria (L.), 30/6.

Drepana binaria (Hufn.), a single example at light on 25/7.

Drepana cultraria (Fabr.), 29/8.

LASIOCAMPIDAE.

Poecilocampa populi (L.), 16/11.

Malacosoma neustria (L.), 4/7.

ZYGAENIDAE.

Zygaena filipendulae (L.).

Procris statices (L.), 7/6.

COSSIDAE.

Cossus cossus (L.), several larvae only obtained.

Species in parenthesis in the above list were recorded by Dr N. Waloff in 1948, and were not observed in the present season.

The writer is deeply indebted to Professor J. W. Munro, Director of the Field Station, for the facilities provided at Silwood Park; to Mr R. G. Davies for helpful advice and for reading through the proofs; to Dr N. Waloff, who lent me the material she collected in this locality in 1948; and to the Agricultural Research Council, under whose auspices part of this work was carried out.

JOHN ASH.

Imperial College Field Station,
Silwood Park, Sunninghill, Berkshire.

COLLECTING NOTES.

ANTIGASTRA CATALAUNALIS (DUP.). (LEP.—PYRAUSTIDAE).—I have to record the capture of a fresh specimen of the above species here on 6th October. It was netted in the garden at dusk, when its peculiar dancing flight attracted attention. By kind permission of the Curator, I have been able to compare my specimen with the only British counterpart in the National Museum of Wales at Cardiff.—A. H. TURNER.

ONCODES PALLIPES LATREILLE (DIP.).—In the *Entomologist's Record* for March 1949, p. 28, I recorded the occurrence of this local species at Epping Forest. This year, on 21st July, I came across this insect in a small disused chalkpit near Warlingham, Surrey. I was examining a plant of *Verbascum lychnitis* and discovered that a hole had been made in the stem and the centre pith excavated upwards for about six inches. A closer examination revealed that a species of wasp had been using the site as a provision chamber for its larvae. The peculiar part was that the flies—21 in all—packed into the hollow were of the same species, namely, *Oncodes pallipes*. Unfortunately I did not recognise the rarity of the fly at the time, or no doubt I could have swept specimens from the adjacent herbage. Also I should have netted the wasp, which was seen leaving the hole and would no doubt have returned.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

DOROS CONOPSEUS F. (DIPT.).—On 2nd June 1950, I captured a strange fly at Betchworth, Surrey, which appeared to be a very large specimen of *Physocephala rufipes* F. A few days ago I took it to the British Museum where Mr Coe determined it as *Doros conopseus*. This species is of sufficient rarity to be worthy of placing on record, although I understand there have been reports of other captures in recent years and the species is becoming more common.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

CURRENT NOTES.

IT is with much pleasure we have to record that Mr H. Donisthorpe who has been for so many years a valued member of our panel of editors has received the acknowledgment of his original work on British Ants, etc., by the Royal Entomological Society of London who have elected him a Special Life Fellow of that Society.

DRYADAULA PACTOLIA MEYR.: AN EARLY RECORD.—Some time ago Mr H. J. Turner gave me some boxes of micros, among which I came across three specimens of a species that was unknown to me. A few days ago I sent these moths to the British Museum and Mr J. D. Bradley informs me the species is *Dryadaula pactolia*, which was first recorded for Britain in 1916 from Gloucester City, where it was found in “a house and cellar, apparently established” (*E.M.M.*, Vol. 52, p. 17). The moths in Mr Turner’s collection are labelled ‘London Dock, Wine

Cellar, 7.iv.06". This is of particular interest, as the date is ten years earlier than the Gloucester record.—S. WAKELY, 26 Finsen Road, Ruskin Park, London, S.E.5.

WE have pleasure in announcing that the Council of the Royal Entomological Society at its recent meeting unanimously elected Mr Horace Donisthorpe, F.Z.S., F.R.E.S., a Special Life Fellow of the Society.

ERRATA.—We much regret that in Current Notes in September it was stated that Crane-flies are now treated as Hymenoptera (Symphyta). This is of course incorrect. Our attention has been kindly drawn to this by Mr James Edwards of Newcastle who has pointed out the following printers' errors in the review:—

- Page 81, para. 6, line 3. For "Crane-flies" read "Saw-flies".
 - Page 84, line 22. For "Trichopteridae" read "Trichoceridae".
 - Page 84, line 25. Insert "Edwards" after "1938".
 - Page 84, line 26. For "Trichopterae" read "Trichoceridae".
-

REVIEW.

"STAND AND STARE". Authors L. H. Newman, F.R.E.S., and W. J. C. Murray. Published by The Staples Press Ltd., Maudeville Place, W.1. Price, 7/6 net.

"Stand and Stare". Just published with an attractive dust cover of a squirrel is a work dealing with those insects and plants that the country lover is likely to encounter on his rambles in the country side.

The joint authors are to be congratulated on the excellence of the illustrations, all of which show the insects and plants in the normal position in which they are to be found.

The accompanying text is equally excellent, giving a short outline of the life history of the various insects, and written in such a way as to appeal to those not usually interested in natural history.

REPORT.

SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY.—The Annual Dinner, held, as last year, at the Charing Cross Hotel, on 27th October 1950, was attended by over 130 members and friends. The Guest Society was the Birmingham Natural History and Philosophical Society. The Royal Society was represented. After the loyal toast the President of the South London Society, Air Marshal Sir Robert Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C., F.R.E.S., proposed the health of the Birmingham Society to which its President, Mr W. Salmon, F.R.M.S., F.C.S., responded. The health of the South London Society was proposed by Lt.-Col. W. Bowater, M.C., B.D.S., T.D., D.L., Vice-President of the Guest Society, and Capt. R. A. Jackson, C.B.E., R.N., F.R.E.S., responded.

The Annual Exhibition was held on 28th October 1950, at Burlington House, Piccadilly, London, W.1, in the rooms of the Royal Society and the Geological Society. The recorded attendance was 375 and there were 101 exhibits. This year a special feature was made of Neuroptera and Orthoptera. Of the former a very extensive and impressive exhibit of all stages was brought by Mr A. E. Gardner. Much attention was attracted by an exhibit of living locusts designed to show the various phases of their life history, a matter of paramount importance in Anti-Locust work. Two recent additions to the list of moths of the British Isles were shown by Mr E. W. Classey—*Luceria virens* L. from Co. Clare, Eire, and *Diarsia florida* Sch. from Askham Bog, Yorks.

Despite the poor summer there was a surprisingly good display of British Lepidoptera. In addition Diptera, Coleoptera and Hemiptera were well represented, the first named including a collection made by Mr Kenneth G. V. Smith, F.R.E.S., on Skokholm Island. Mr H. E. Hammond had three cases of preserved lepidopterous larvae representing 133 species. Fungi are difficult to exhibit as they must be collected immediately before the day. Mr W. H. Spreadbury's exhibit must have entailed much searching because a week's dry weather had made fungi comparatively scarce. The Insect Fauna of Birds' Nests was dealt with by Mr B. J. Southgate and Mr G. E. Woodroffe of the Department of Scientific and Industrial Research, Pest Infestation Laboratory, Slough, Bucks. A moth hitherto taken North of the Border only was this year discovered in Cumberland by Mr F. T. Vallins—*Amathes alpicola* Zett. Mr S. Gordon Smith brought a remarkable selection of bred aberrations of the Early Thorn moth, *Selenia bilunaria* Esp., enabling those present to see the originals of the forms depicted in the third volume of "Cheshire and North Wales Natural History". Varieties of the Chalkhill Blue Butterfly, *Lysandra coridon* Poda, are always well represented at the Exhibition, but not often does one see a breeding experiment with these varieties. Mr R. E. Parsons showed the progeny of two females ab. *obsoleta* Tutt. Mr A. M. Morley brought two larvae of the newly discovered pug moth, *Eupithecia millefoliata* Roes.—T. R. EAGLES, *Editor*, 32 Abbey Road, Enfield, Middlesex, November 4th, 1950.

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DECEMBER 1950



ENTOMOLOGIST'S RECORD AND JOURNAL OF VARIATION

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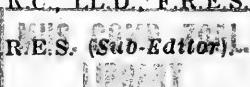
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A FORTNIGHT'S BUTTERFLY COLLECTING IN FRANCE.

(FONTAINEBLEAU AND LAC D'ANNECY.)

By R. F. BRETHERTON.

To the English collector of butterflies a holiday in France has many attractions. Unless he is very unfortunate in his season and locality he will see much greater numbers, both of species and of insects, than he could do with the most assiduous activity anywhere in the British Isles. Besides catching many novelties, he will have the interest of comparing the various Continental races of many species which are to be found both here and abroad, and in tracing their habits of flight and food-plant, which are often very different. Yet, unless he embarks on the much wider field of Continental Heterocera, it is not difficult to build up a representative collection in a few seasons. The total of about 230 species of butterflies for the whole of France is not unmanageable; and only another 100 or so are added if he tries to cover the whole of Europe west of the Iron Curtain. Nevertheless, the difficulty of discovering where and when to look for particular species remains. French and Belgian lepidopterists have done much in recent years to work out their fauna, and some of their results are readily available in "L'Amateur des Papillons" and "Lambillionea." But there are still many gaps, which even a visitor can help to fill.

My own holiday this year took me to the mountains beside the Lac d'Annecy in Haute Savoie. On the outward journey, having the 2nd August to spare in Paris, I went out to the Forêt de Fontainebleau. There was heavy cloud and some rain on my arrival at 1 p.m. and a short clearance was followed by a thunderstorm and intermittent cloud and strong wind, so that I had a bare two hours of effective collecting. The Champ de Tir, to which I had been recommended by a French friend, is a long sandy depression, full of flowers and patches of heather and bordered on one side by woods of Scots fir and small oak and on the other by a rocky ridge. It certainly provided a far greater concentration of butterflies than I had been able to find in previous wanderings in the more northerly parts of the forest, and the total of twenty-five species seen was pretty good in the short time and poor weather.

The first objective was *Satyrus statilinus* Hfl., which frequented particularly a south-facing wall, in competition with numbers of *Pararge maera* L. and *P. megera* L. It was, however, only just emerging and was very difficult to catch in the strong wind, so I only secured three males. Fontainebleau is, I understand, about its most northerly station in France, and the form there is peculiar for its small size and strong markings. I looked in vain for *S. arethusa*, which was probably not yet out; but there were a few magnificent *S. Hermione* skipping from trunk to trunk among the pine-trees. *Plebeius argus* L. (*aegon* Schiff.) was in plenty on the heather, and among the flowers nearby there were a few *Lycaena idas armoricana* Obth., a strongly-marked race almost as large as the small *Polyommatus icarus* Rott. with which it flew. It is one of the Fontainebleau specialities, and I was very glad to find it. *Lysandra coridon* Poda was abundant but not variable, and the second brood of *L. bellargus* as yet consisted mainly of males. Some

very fiery examples of *Heodes phlaeas* L. dashed about along with *H. tityrus* Poda (*dorilis* Hufn.). The most interesting Fritillary was *Melitaea cinxia* L., distinguished in its second generation by its very small size; and with it there were many *Argynnis aglaja* L., *A. dia* L., and a few *M. parthenoides* Kef. A few splendid *Iphiclus podalirius* L. balanced with upraised tails on the thistles, and there were a few *Colias croceus* Fourc. and more "Pale Clouded Yellows." All of these, like others which I have taken in previous years near Paris, appeared to be true *C. hyale* L. and not *C. australis* Vrty., although in this locality there is plenty of *Hippocrepis comosa* and no lucerne. Among the Skippers *Ochlodes venata* B. et G. and *Erynnis tages* L., in its second brood, were common, and I took one *Spatialia sertorius* Hoff. But the dominant Skipper was *Pyrgus cirsii* Rambur, another Fontainebleau speciality easily spotted on the wing by its sharply chequered underside and very active flight.

I joined my family at the Gare de Lyon in the evening and we took the night train for Annecy. Our destination was the village of Menthon Saint Bernard, four miles up the east side of the lake, where we stayed until 16th August. The surroundings are of great natural beauty: the lake, distinguished by its brilliant shades of blue, green, and steel-grey beneath steep outjuts of scrub-capped rock: two narrow steps of field and vineyards: a very steep forest belt and then the sub-alpine pastures running up to the bare rocks of La Tournette (2357 metres) and the Dents de Lanfon (1828 metres). These are, of course, foothills and not the High Alps; they are too far north for Mediterranean or south Alpine influences; and August is certainly past the peak of the butterfly season. We concentrated on the butterflies, of which over seventy species were recorded; but we also took such diurnal moths as came our way, though we attempted no night operations. The evenings and two or three wet or cloudy days were, indeed, pretty fully occupied in sorting and setting the captures.

The collecting grounds around Menthon are broadly of three kinds: There is the "low-level"—the wooded Roc de Chère by the lake and the fields and slopes beside, from 450 to about 800 metres where the steep forest zone begins, and also the flowery sides of the road over the low Col de Bluffy to Thones, which we found to be very profitable ground. It also includes a large reedy marsh at Bout du Lac, which I visited with hopes of *Lycaena dispar rutilus* Wbg. and *Maculinea teleius* Bgr.; but, though probably worth a visit at night, it proved to be intolerably hot and to contain very few butterflies. Then there is the forest zone, which extends in most places to about 1300 metres; and finally the flowery alps below and among the rocks of La Tournette and the Dents de Lanfon.

The forest zone can be dismissed briefly. With a rich mixture of deciduous trees and spruces and with many clearings, it looks promising. But in August, at any rate, it produced few butterflies which were not also to be found in smaller numbers above or below it. *Erebia aethiops sapaudia* Frhst. was dominant; it fluttered in dozens in every clearing and provided a good range of varieties, particularly those with additional eye-spots. The second brood of the Continental White Admiral, *Limenitis rivularis* Scop., was almost as common. Its English relative *L. camilla* seems to be mainly single brooded here, and

apart from one absolutely fresh specimen we saw only tattered remnants. *Argynnис paphia* L. was very common—I counted more than three dozen on a single *Buddleia* bush in a ravine near the Chateau de Menthon—but was also getting worn. Our best capture in the forest zone was a male *Apatura iris* L., which, after I had walked past it, my son Francis spotted as it drank early in the morning at a dribble of water under a tall sallow at over 1200 metres. True, it bore the marks of age; but it was interesting to find it so high up and, as a capture, “*iris* is always *iris*. ” He was also responsible for discovering the presence of that magnificent giant Ringlet, *Satyrus dryas* Scop., not, indeed, in the forest zone but in the most thickly-wooded parts of the Roc de Chère above the lake. It was, however, rather scarce and local, and some hard work was necessary before we secured an adequate series. It varies astonishingly in size: my smallest male measures 60 mm. and the largest female 76 mm. Another common forest butterfly was *Pararge aegeria* L. in its southern, bright ochreous form which differs so startlingly from the British sub-species. There were some attractive Geometrid moths, mostly of the *Gnophos* group; and almost every clump of Hemp Agrimony was decorated with the brilliant *Callimorpha quadripunctaria* Poda—our Jersey Tiger. These were all of the form with red hindwings; I saw none with yellow hindwings, which in Brittany I have found as numerous as those with red.

Over much of the “low-level” area butterflies were by English standards almost incredibly common. Many patches of lucerne, which springs up and blossoms in the fields after the hay is cut, provided convenient assembly points, and hemp agrimony and a kind of mint which grew in ditches were attractive to many species. Most of the butterflies belonged to second broods and were in excellent condition. *Melitaea didyma* Ochs., *M. parthenoides* Kef., and *Argynnис dia* L. showed a fair range of variation, but I saw no extreme forms such as one might expect to be able to select from such great numbers. I suspect that great numbers are in fact unfavourable to the production of extreme genetic forms, since the chances of close inbreeding must be proportionately so much smaller than in small, localised colonies. *M. cinxia* L. was scarcer, and a second brood of *M. helvetica* Ruhl. seemed to be only just beginning when we left. Worn specimens of *A. aglaia* L. and a few female *M. phoebe* Knoch. were the remnants of the only brood of these species. Among the *Lycaenidae*, *Heodes tityrus* Poda was especially abundant on mint flowers, and there were plenty of *Polyommatus icarus* Rott., *Lysandra coridon* Poda, *L. bellargus* Rott., and, very locally, of *Plebeius idas* L. Better and scarcer insects were *Everes argiades* Pall., *Lysandra argester* Bgr. (*hylas* Esp.), and *Agrodiaetus damon* Schiff, all from the road to the Col de Bluffy, where *Lysandra thersites* Cant. also occurred sparingly. We took a single male, fresh but belated, of *Everes alcetas* Hoff., the most delicate of all French butterflies, which I had found abundantly by the lake in early July, 1948. There were also a few worn *Cupido sebrus* Hb. and a second brood *Lycaenopsis argiolus* L. *Melanargia galatea* L. and the ordinary Browns—*Pararge megera* L., *P. maera* L., *Maniola jurtina* L. and *Coenonympha pamphilus* L.—were everywhere; but the most striking of the Satyrine group was the giant *Satyrus circe* F., whose females, up to 92 mm. in expanse, are almost the largest European butterflies.

We found these in ones and twos flying lazily about the fields and settling, with excellent camouflage, on the ground; but they also flew vigorously along with worn specimens of *S. hermione* L. along the rocky ridge of Mont Baron (1288 metres), and we found a small colony around some tall thistles in the alpine zone below La Tournette. In this breadth of range they were excelled, however, by *Papilio machaon* L. and *Iphiclus podalirius* L., which flew from beside the lake to nearly 2000 metres. The three ordinary Whites were refreshingly scarce. *Leptosia sinapis* L. fluttered gently in lanes and clearings, and fine fresh *Gonepteryx rhamni* L. fed among the lucerne, though we also saw several strays on the mountains a good thousand metres above any buck-thorn to feed their larvae. *Colias croceus* Fourc. was rather scarce; most were males, but I took one fine greenish-tinted female of the *helice* form. It was flying in a lucerne field from which I also obtained a series of "Pale Clouded Yellows" which by all outward signs are undoubtedly *C. australis* Vrty., not *C. hyale* L. From the little we know of the geographical range of these two insects, this is not surprising; but all the *C. australis* at Menthon seemed to have the habits of relatively easy flight and liking for lucerne generally associated with *C. hyale*; nor was its allegedly exclusive food-plant, *Hippocrepis comosa*, common there. I had intended to bring home some living females for breeding purposes, but was defeated by cloud and rain on the last day of our stay. But I commend this procedure to anyone who may wish to probe the mystery which, I feel sure, still surrounds the relations and distinctions between *C. hyale* and *C. australis*.

Only a limited selection of Skippers was found at low levels. *Ochlodes venata* B. et G. was common but worn. Fresh *Hesperia comma* L. were numerous; a large dark race not apparently differing from that found much higher up on the mountains. Second broods of *Erynnis tages* L. and *Spialia sertorius* Hoff. were common. Besides these, a few specimens were taken of a squarish, thick-set, black and white Skipper, apparently referable to the second brood of *Pyrgus armoricanus* Obth. A striking feature was the scarcity of Vanessidae; two or three *Vanessa cardui* L. on Buddleia and some worn *Vanessa atalanta* L. which frequented rocky places among trees were the only ones seen at low level.

In the alpine zone the fauna was very different. Forty species of butterflies were recorded above 1400 metres, of which only fifteen were also seen lower down. We paid two visits to La Tournette, on 7th and 10th August, both days of favourable weather, though they ended with thunderstorms before sunset. The western slopes are cut at about 1600 metres by a band of rock which hampers the approach of grazing animals. Above it, around the little chalet hotel and up to about 2000 metres, there is a veritable rock garden, sheltered from the winds and full of flowers and insects. It was vastly superior to the lower but more exposed Col des Frettes, below the Dents de Lanfon, which we worked without much profit on 13th August.

On La Tournette the genus *Erebia* was conspicuous, though the number of species was limited. The best was *E. pluto* pluto de Pr., of which a single gleaming male was taken high up below the ridge at about 2100 metres. This is usually a moraine insect, so its presence on a mountain which has neither glacier nor permanent snow is interesting. On the same slopes, but extending lower down, *E. cassioides*

murina Rev. flew abundantly among the grasses: a large, strongly-ocellated form, with many of the females conspicuous by chalky-white undersides to the hindwings. Three of the subspecies of *E. cassioides* must come very close together in this region; for according to Warren *carmenta* Frst. inhabits the Mont Blanc range thirty miles to the east, and I have myself found the smaller and duller *subcassiooides* Vrty. in the Vanoise not much further to the south-east. *E. pronoe vergy* Ochs. frequented rather more rocky ground, in a very large, dark form with the apical spots much reduced or even absent. In this species the males emerge much before the females; and here, though many males were already worn, I could find no females at all. Commonest of all the *Erebias* was *E. manto mantooides* Esp. It was variable in size—from 48 mm. to less than 40 mm.—and also in development of the spots and light band; there were many of the extreme form, *pyrrhula* Frey, in which on the forewings these are reduced to a single small patch on both surfaces, surrounding minute apical spots. I also took a single belated *E. alberganus ceto* Hb., and there were a few *E. aethiops sapaudia* Frst., rather small but not otherwise differing from those in the forest zone. Another prominent Satyrine was *Coenonympha satyrium* Esp., though only the females were in decent condition.

Synchloë callidice Esp. was seen near the summit of La Tournette, though by its rapid flight it evaded capture. *Parnassius apollo* L. was fairly common on our second visit, and included several of the fine form *pseudonomion* Chst., which is usually to be found on the Jura. *Colias phicomene* Esp. was really abundant. It must have a very long period of emergence, for I took several on the same ground in 1948 as early as 4th July. Some of the males were so suffused as to appear almost black, and the females were dimorphic in about equal numbers—one form in which the ground colour is white, the other greenish-yellow.

There was a fine showing of Nymphalines. *Aglais urticae* L. showed a very bright form with reduced markings approaching ab. *ichnusa* Bon. There were stray *V. cardui* and *V. atalanta*, and both *Nymphalis io* L. and *Polygonia c-album* L. had apparently bred on a patch of nettles behind the chalêt—the latter a dark, dwarf form. *Melitaea didyma* and *M. phoebe* were both present and there were some rather worn examples of *M. dictyna* Esp. *Argynnис cydippe* L., here exclusively a mountain insect, and *A. aglaia* were both common, and single specimens were taken of *A. niobe* L. and *A. lathonia* L. There was also a single worn female of *A. amathusia* Esp., which had presumably strayed up from the forest. But far the commonest Fritillary was that true alpine, *Boloria pales pales* D. et S., which flew restlessly around the flowers of a yellow hawk's bit. It ran to much variation in the amount of black suffusion, and I secured one female in which the fulvous ground colour is almost entirely obscured. *Boloria napeae* Hoff. was not seen here.

The Lycaenidae were rather disappointing. The only Copper was *Heodes hippothoë* L. (*chryseis* Bgr.), of which we discovered a flourishing colony in a damp and dock-grown hollow behind the chalêt. But in spite of the altitude, only in one male did I notice the loss of orange suffusion on the underside and other characteristics of the high mountain form *erybia* Ochs. Nearby, a patch of geranium harboured *Eumedonia chiron* Rott. (*eumedaon* Esp.) and *Polyommatus eros* Ochs., but

both were scarce and difficult to follow among the rocks. There were fair numbers of the dark alpine form of *Aricia agestis* Schiff., and *P. icarus* and *L. coridon* were present in small numbers and clearly near the top of their range. There were also some very small and dark *Cyaniris semiargus montana* Frey.

Among the Skippers, *H. comma* was everywhere, and I got one worn *Carcharodus floccifer* Zell. (*altheae* Hb.). Black and white *Pyrgus* were numerous and very active. Most of these were ordinary *P. alveus* Hb., but a few, taken high up on the grass slopes above 2000 metres, were the smaller and brighter *P. carlinae* Rambur. As for day-flying moths, there were a number of Geometers, including *Crocota lutearia* F., *Coenotephria verberata* Scop., and several *Gnophos*. Burnets were conspicuous, *Zygaea transalpina* Esp. being the commonest, with a few *Z. achilleae* Esp. and *Z. carniolica* Scop.

We made no distant expeditions from Menthon. No doubt, if we had, we could have added many more and rarer species to our list. But from an oecological point of view the results of a fortnight's fairly intensive collecting in a small area may be more interesting. Certainly, when we left for London on the evening of 16th August we felt that our activities had not been unsuccessful.

Ottershaw Cottage,
Ottershaw, Surrey, 8th October 1950.

NINTH INTERNATIONAL CONGRESS OF ENTOMOLOGY.

AMSTERDAM—THE NETHERLANDS.

We have the pleasure of announcing that the IXth International Congress of Entomology will be held at Amsterdam, the Netherlands, from 17th to 24th August 1951. The general sessions and most of the sectional meetings will be held at the "Indisch Instituut."

SECRETARIATE.

The General Secretariat Headquarters are at the Physiological Laboratory, 136 Rapenburgstraat, Amsterdam. All correspondence should be sent there.

SECTIONS.

The Congress will include meetings of the following sections:—1. Systematics and Morphology; 2, Nomenclature; 3, Genetics and Ontogeny; 4, Physiology; 5, Ethology (analytical behaviour studies); 6, Ecology and Biology; 7, Zoogeography; 8, Agricultural entomology and Beekeeping; 9, Forest entomology; 10, Tropical agricultural entomology; 11, Stored-products entomology; 12, Medical and veterinary entomology; 13, Insecticides and insecticidal technique; 14, Arachnoïdea.

EXCURSIONS.

During the Congress excursions will be organized, adapted to the interests of the different sections. On the 25th a general excursion will be held. On the following days excursions can be made for collecting or other purposes, some of which may last more than one day. Special wishes of members of the Congress will be met with as far as possible.

CONGRESS FEE.

The Congress fee has been fixed at 40 guilders per member and at 25 guilders for an accompanying member. The excursions will be charged at cost price.

MEMBERSHIP.

Those who want to apply provisionally for membership are requested to fill in the accompanying card, and return it to the Secretariate as soon as possible. In due course the definite application form will then be sent, together with all further particulars. On this second form the names of accompanying members can be stated too.

No further circulars will be sent to those who do not return the enclosed post-card.

The organizing Committee,
J. DE WILDE,
Hon. Gen. Secretary.

Those who would like to receive a personal invitation are kindly requested to apply to the Hon. Gen. Secretary.

COLLECTING NOTES.

A SMALL EUCHALCIA GAMMA.—On 12.viii I took a specimen of *Euchalcia* (" *Plusia* ") *gamma* only 27 mm. in expanse (the normal size is about 40 mm. or over).

I do not use the genonym *Plusia* for this species, as it seems to be invalid for use in Lepidoptera. *Plusia*, Hoffmannsegg, *Zoologisches Magazin*, I (i), p. 52 (1817), is valid for a Hymenopterous genus. The synonymy is rather complex, but seems to be:—

I.

Uncu, Oken, *Lehrbuch der Naturgeschichte*, III, i, 687-690 (1815): type *Noctua triplasia* Linn. 1758 [included (a) *triplasia*, (b) *gamma*, *interrogationis*, *chrysitis*, *sulphurea*, and (c) *mi*, *glyphica*, *lunarisi*].

||*Abrostola*, Hübner, *Verz. bek. Schmett.*, p. 248, Coitus No. 3 (1821): type *triplasia* Linn.

Abrostola, Ochs., *Schmett. Eur.*, IV, 88. No. 75 (1816) [*non-descr.* for *triplasia* L., *asclepiadis* Schiff., *consona* Fb., *modesta* Hb., *illustris* Fb.]

Habrostola, Sodoffsky, *Bull. Soc. Imp. Nat. Moscou*, X, No. 6, p. 88 (1837) [*emend.*].

||*Plusia*, Treitschke, *Schmett. Eur.*, V, iii, 134-135, No. 76 (1826). [Described to include Ochsenheimer's *non-descript* (1816) genonyms *Abrostola* and *Plusia*, united by Treitschke regardless of the priority of *Abrostola*; so here including, as No. B.2, *triplasia* Linn., genotype of *Abrostola* Hb. 1821].

[*nec Plusia*, Hoffmannsegg 1817: HYMENOPTERA.]

Note:—*Plusia*, Hb. 1806 (*Tentamen*) is not a genonym but a stirps name.

||*Inguridia*, Butler, *A.M.N.H.* (5), IV, 359 (1879): type *abrostolina*, Butl. 1879.

III.

- EUCHALCIA Hb., Verz. bek. Schmett., p. 250, Coitus No. 2 (1821): type [*Noctua variabilis*, Piller 1783=] *illustris*, Fb. 1787.
 ||*Autographa*, Hb., Verz., p. 251 (1821): type *gamma*, L.
 ||*Panchrysia*, Hb., Verz., p. 252 (1821): type *deaurata*, Esper.
 ||*Diachrysia*, Hb., Verz., p. 252 (1821): type *chrysitis*, L.
 ||*Chrysaspidea*, Hb., Verz., p. 252 (1821): type *bractea*, Schiff.
 ||*Plusia* [nec Treits.], Duponchel, *Lep. France*, VI, p. [13] (1826): [type cited as *festucae*].
 ||*Plusiotricha*, Holland, *Psyche*, VII, 10 (1904): type *livida*, Holland [W. Africa].
 ||*Phytometra* [nec Haw.], Hampson, *Cat. Phal.*, XIII, 452 (1913): [type cited as *festucae*].

So we see that the genonym, *Plusia*, was first validated by description by Hoffmannsegg in 1817 for a genus of S. American Hymenoptera. *Plusia*, Ochsenheimer 1816, was non-descript and hence invalid and *Plusia*, Treitschke 1826, was (1) praeoccupied and (2) a synonym of *Unea*, Oken 1815, and therefore also unusable.—T. BAINBRIGGE FLETCHER, Down Hatherley, 18.xi.1950.

HEPIALUS SYLVINUS (*ante*, p. 90). Dr Neville L. Burkett, Kendal, kindly informs me (*in litt.*) that in Westmorland this species flies in late July, the dates of appearance being 18.vii.1924 and 1926, 20.vii.1925 and 1938, 26.vii.1923 and 21.viii.1922.—T. BAINBRIGGE FLETCHER.

ALUCITA PENTADACTYLA usually appears on the wing about mid-summer (in 1933 on 9.vi) and single odd individuals may occur in August (17.viii.34). This year I found one on 9.ix. These later examples do not seem to indicate a second brood but merely retarded emergences of a single brood.

Of the pupa, Ford (*Guide Smaller Brit. Lep.*, p. 37) states that it is found "on the foodplant." In my experience the full-fed larva always wanders off the foodplant. In the case of our Cotswold rough-stone walls the larva is very fond of taking up a pupating position beneath a stone on the top of the wall.—T. BAINBRIGGE FLETCHER, Down Hatherley, 18.xi.1950.

AMENDMENTS TO THE RULES OF NOMENCLATURE.

By FRANK BALFOUR-BROWNE.

Earlier in the present year I received Vol. 3, parts 1-6, of the *Bulletin of Zoological Nomenclature*, consisting of 158 pages, setting out what was done at the International Congress of Zoology, which took place in Paris in July 1948. Like so much of the literature concerned with zoological nomenclature, it requires very close study to extract the points raised which, in some cases, recur more than once. The more such points are raised and legislated for the more unintelligible become the rules to the ordinary zoologist. If the whole literature were cut down to a few rules there would be much less confusion.

To take one example of what appears to me to be sheer waste of time, paper and printing. Article 14 of the Code states that an adjectival trivial name shall agree in gender with the generic name. At the Paris meeting it was suggested that although this rule had been strictly followed by earlier authors, the introduction of neo-Latin or pseudo-Latin words with unknown genders had necessitated some additions to the rule and these are set out and apparently have been approved by the Congress.

No date is fixed for these amendments to come into force and consequently we shall have a number of enthusiastic grammarians making changes in the terminations of species names which have long been in use and doubtless one of the first attacks will be made on Article 18 where "*Capra hirtus*" is printed two or three times! Moreover, nothing is said about what is to happen should a species name with, say, a masculine ending have to be later transferred to a genus with a feminine suffix, so that another element of fluidity is introduced into the Code.

Further, there will always be some ungrammatical name-makers and just as many existing wrong genders are protected by certain rules, so these new names will be protected and will only be corrected under the amendment by stultifying the much more useful original rules, Art. 19 and Art. 25. And it seems that, under the recommendation added to Art. 36, it is possible to introduce a new species name differing from one already in the genus only in having a suffix of a different gender!

Is not all the suggested improvement of Article 14 only an increase in verbiage? So long as a name is a name let us have it even if it offends the eye of the grammarian and let the Commission impress upon editors the aesthetic value of the rule and get them to require would-be authors to subscribe to it.

Brocklehurst, Collin, Dumfries.

Mr Balfour-Browne is, perhaps unnecessarily, perturbed by the action of the International Congress of Zoology. Personally, I pay no attention to any Rules issued by any Congress or other body of Zoologists—or Chemists or Astronomers—since such Rules do not apply to Entomology and in any case they have no force of law and are not binding on any worker. They are at best opinions issued by a self-constituted body, which, however well-meaning, cannot possibly legislate for every contingency.

Many Codes have been published in the past, such as Fabricius, *Philosophia Entomologica*, 1778; Crotch, *Notes on Nomenclature of Lepidoptera*, 1872; Lewis, *Discussion of the Law of Priority in Entomological Nomenclature*, 1872; Sharp, *Object and Method of Zoological Nomenclature*, 1873; Walsingham and Durrant, *Merton Rules*, 1896; *Nomenclature of Lepidoptera: Correspondence*, 1899; Stiles and Hassall, *The Determination of Generic Types*, 1905; Banks and Caudell, *Entomological Code*, 1912; Report of British National Committee on Entomological Nomenclature, 1925 and 1928. All these, and many others, express opinions (often diverse) and will help the systematic worker to form his own ideas on critical points which often arise in the course of his work. But I would insist that the worker is free to form his own

ideas, provided that he has more than an elementary knowledge of his subject, and is not to be coerced by "Rules" which are often contrary to common sense.

As regards Mr Balfour-Browne's quotation of the term "*Capra hirtus*," I can only say that it is impossible. *Capra* means a she-goat (*Caper* a he-goat) and *hirtus* is an adjective meaning shaggy: we can have *Caper hirtus* or *Capra hirta*. "*Capra hirtus*" merely shows ignorance, and scientific work is not based on ignorance or inaccuracy.

I do not follow Mr Balfour-Browne's difficulty as to what is to happen when a specific name with a masculine inflexion is transferred to a genus whose name is feminine (or neuter); obviously, the specific name changes its inflexion to agree with the gender of the genus in which it is placed: thus, *Papilio niger* will become *Vanessa nigru*. It is impossible to have two species, with similar specific names, in the same genus, as one name is necessarily a homonym of the other and hence invalid.—T. BAINBRIGGE FLETCHER.

REVIEW.

MITTEILUNGEN DER SCHWEIZ. ENTOM. GESELLSCHAFT, XXIII, Heft 3 (15.x.1950), contains several papers of interest to us in England. F. Schmid gives a revision of the genus *Hydatophylax*, Wlgn. (pp. 265-296, 75 figs.), in which he shows that *Hydatophylax* is a good genus separable from *Stenophylax*, Kolenati, in which our British species, *infumatus*, McLachlan 1865, is included in Kloet and Hincks *Check List*. J. Aubert has a note on the European Plecoptera of the genus *Taeniopteryx*, Pictet, and on *Capnia vidua*, Klapalek (pp. 303-316, 37 figs.): our English forms are *T. nebulosa*, Linn. 1758, and *Capnia vidua anglica* n. subsp. from Woodhead, Cheshire. J. de Beaumont writes on the synonyms of some species of *Cerceris* (pp. 317-328) and reviews the species described by Fabricius, Rossi, Thunberg, Klug, Brullé, Lepeletier, Dufour, Costa and Marquet.—T. BAINBRIGGE FLETCHER, 26.x.1950.

SPECIAL NOTICE.

With much regret we have to announce the death, on 19th December 1950, of Mr Henry Jerome Turner, at the age of 94 years. Mr Turner, who has edited this magazine for forty years, since Mr Tutt's death in 1911, had been in gradually failing health for some time. A further Notice will appear later on.

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siriter Smith, 91 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Antitopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy: *Etudes les Mouches Parasites*, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin: A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids, 1923. and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

For Disposal—A Collection of 650 set specimens of Indian Trycaenidae, named and with full data, as a whole or in part, in two store-boxes. Would exchange for British Bombyces, Noctuids and Geometrids.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted to Purchase—A Second-hand good conditioned Butterfly Cabinet, ten to sixteen drawers.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants*

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 11a The Broadway, Portswood, Southampton.*

Duplicates.—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides. Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). Desiderata.—Numerous to renew.—*L. H. Bonaparte Wyse, Corballymore, Co. Waterford.*

For Sale—Tutt's "Hints for the Field Lepidopterist," 3 volumes.—*W. J. Waits, 42 Bramerton Road, Beckenham, Kent.*

Wanted.—Urgently required for laboratory work this year: larvae (any stadium), or fertile eggs, of *Stauropus fagi*, L. Any reasonable price will be paid.—*P. B. M. Allan, 4 Windhill, Bishop's Stortford, Herts.*

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All Communications should be addressed to the Acting Editor, H. J. TURNER, "Latemar," 25 West Drive, Cheam, except changes of address and "Exchange" notices which should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: Dec. 6th, Jan. 17th, 1951 (Annual Meeting), at 5.30 p.m. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Piccadilly, W.1: Dec. 13th, Jan. 10th, 1951. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7. *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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THE EDITOR, DEPT. OF BOTANY, QUEEN'S UNIVERSITY,
BELFAST.

Catocala nupta, L.

(Continued from p. (76), November (1949).)

ab. *confusa*, Obthr. (1881) [Pal. Noct., III, 304, (1913)].

DESCRIP.—"Has the whole forewing blurred dark grey, with the inner and other lines and the reniform stigma darker, but diffuse on a slightly paler median area, the median band of the hindwing strongly curved, its outer edge diffuse, its lower extremity running up narrowly to inner margin towards base, the black terminal border projecting inwards as long narrow teeth along the veins with the red ground colour running up between them."

ab. *nuptialis*, Stdgr., Cat., IIIed., (1901), p. 248.

nupta, Stett. e. Ztg., (1882), p. 56.

ORIG. DESCRIPT.—Ili amt delius griseis, fgis (obscuro) variegatis; trans ad sp. sequ. Al. ant. dilutius griseis, magis (obscuro-) variegatis; trans ad sp. sequ *adultera*.

ab. *obscurata*, Obthr., Et., p. 86, (1856), Stdgr., Rom. Mem., VI, 585 (ab. ant. *obscurioribus*).

ab. *guiartii*, Lamb., Revue Mensuelle, p. 3, (1905), the name is given to the description which is in the December number, p. 69, (1904).

ORIG. DESCRIPTION.—M. Guiart found, in September 1902, in the neighbourhood of Anvers, a most interesting aberration of *Catocala nupta*, in which the red of the lower wings, as well on the under side as on the upper, is replaced by a striking bluish suffusion; the black sinuous border remains and just reaches the rest of the wing.

ab. *flava*, Schultz., Ent. Zeit., XX, 86, (1906).

ORIG. DESCRIPT.—"Both forewings are not different from the typical form. The costal margin of the hindwings (up to vein 5) about the upper third of the whole wing, shows the normal bright red colour, while the rest of the wings is orange-yellow; only the anal angle shows somewhat of the red coloration."

ab. *mutilata*, Schultz., Ent. Zeit., XX, 196, (1906).

ORIG. DESCRIPT.—"Al. post. fascia media abbreviata."

"An abbreviation of the typical marking by the shortening of the black band on the hindwings."

ab. *fida*, Schultz., *Ent. Zeit.*, XXII, 169, (1909).

ORIG. DESCRIPT.—“ This form differs from the typical specimens, in that between the marginal area and the sharply toothed wavy line of the forewings, there lies a distinct, broadly white, fairly sharply defined broken toothed line.”

Hamp., *Cat. Lep. Ph.*, XII, 85, (1913). Forewing with the terminal area whitish.

ab. *dilutior*, Schultz., *Ent. Zeit.*, XXII, 169, (1909).

ORIG. DESCRIPT.—“ The ground colour of the forewing appears in comparison with the typical form, much paler. This is either brownish-yellow and the typical markings stand out somewhat darker (yellow-brown coloured) on this ground, or the forewing has a whitish-grey coloration with no apparent yellowish suffusion.”

ab. *brunnescens*, Warr., *Pal. Noct.*, III, 305, (1913).

FIG.—Plt. 55 b, *l.c.*

ORIG. DESCRIPT.—“ 3 rather small ♂♂ captured near London have the hindwing dark olive-brown.”

“ At Tring (in 1948) I saw the type of ab. *brunnea*, Warr. (of *C. nupta*). The red of the hindwings is replaced by dark brown spots with purple. There can be no doubt that this form is the same as ab. *caerulescens*, Ckrl., though Cockerell's description is very misleading.”—Lempke.

ab. *languescens*, Warr., *Pal. Noct.*, III, 305, (1913).

FIG.—Plt. 55.

ORIG. DESCRIPT.—“ The hindwing is yellowish-white with a faint pink flush.”

ab. *alterata*, Warr.-Stz., *Pal. Noct.*, III, 305, (1913).

ORIG. DESCRIPT.—“ Has the black bands of the hindwings altered to grey.”

ab. *rubridens*, Warr., *Pal. Noct.*, III, 305.

FIG.—*l.c.*, plt. 55.

ORIG. DESCRIPT.—“ Shows the red ground colour of the hindwing running out along veins 2 and 1 in the shape of sharp wedge-shaped teeth almost interrupting the black medium band, which is swollen between them in a large horseshoe-shaped blotch.”

ab. *grisescens*, Hannem. [Drdt.-Stz., *Pal. Noct. Supp.*, III, 213 (1935)].

DESCRIP.—“ Monotonously brownish-grey specimens with darker markings.” Berlin.

ab. *nigrescens*, Hannem. [Drdt.-Stz., *Pal. Noct. Supp.*, III, 213 (1935)].

DESCRIP.—“Darker grey-black specimens with darker markings.” Berlin.

ab. *xanthophaea*, Schwrd., *Zeit. Öst. Ent. Ver. Wien*, X, 47, (1925).

ORIG. DESCRIPT.—“Herr Anton Otto, Klosterneuburg, near Wien, obtained *Catocala nupta*, in which the hindwings were not red but fine yellow-brown.”

ab. *clara*, Obthr. [Drdt.-Stz., *Pal. Noct. Supp.*, III, 213 (1935)].

DESCRIP.—“Is a larger form with much purple-grey on the forewings that are more faintly dusted so that the 2 black transverse lines stand out sharply. The central area around the reniform towards the costa is more heavily dusky blackish; the whitish patch before the reniform is remarkably large, pale and prominent.”

nupta, subsp. *kansuensis*, B.-H., *Hormae. Macro.*, I, 88.

FIG.—

ORIG. DESCRIPT.—“Forewings coloured pale grey with quite indistinct marking, in the ♀ blue-grey with white spots under the reniform, which is united with the outer transverse line by a loop. The hindwings are pale red, the black central band somewhat shorter and narrower than in the typical form.” Kansu, Richtohofen (N. Asia).

ab. *salmonea*, Ckyne., *Ent. Record*, LVII, 75, (1946).

ORIG. DESCRIPT.—“The red colour of the hindwings is replaced by pale to medium salmon-pink.”

The ♂ type, New Forest, Hants., 1906.

♀ allotype, Croydon, 6.11.1915.

ab. *nigra*, Lempke, *Tijdsch.*, XC (VIII), p. 104 (1948).

ORIG. DESCRIPT.—“Hindwings unicolorously black, the red colour still feebly perceptible.”

ab. *variegata*, Lempke, *Tijdsch.*, XC (VIII), p. 103 (1948).

ORIG. DESCRIPT.—“Forewings grey, strongly spotted with yellow. markings dark and sharply contrasted.”

ab. *sanguinea*, Lempke, *Tijdsch.*, XC (VIII), p. 104 (1948).

ORIG. DESCRIPT.—“Ground colour of the hindwings beautifully blood-red.”

Catocala, Schrnk., *sponsa*, Linn.

Catocala, Schrnk. (1802), most authors [*Mormonia*, Hb. (); *Astiota*, Hb. (1820)].

Warr.-Stz., *Pal. Noct.*, III, (1913), p. 302, adopted like the genus *Mormonia*, Hb., for this and a few other *Pal.* species out of the 47 included by Stdgr. in the *Cat.* They dealt with the forms: (1) ab. *rejecta*, Fisch.-Wald. (54 b), besides being smaller has the hindwing clouded with fuscous in the basal area, the median thickness, and the red band following much narrower than usual, the terminal border brownish-black, with red ground dull pink; it is suggested as a good species from its general appearance. (2) Examples in which the median space between inner and outer lines is prominently paler grey than the other areas are separated by Spuler but not named. (3) ab. *desponsa*, Schultz, the red of the hindwing is either yellow, or partially changed to that colour (a change more frequent in *nupta*, etc.). (4) ab. *florida* Schultz, comes very near to *fasciata*, the median and terminal areas, whitish-grey, while the basal area and the space between the outer line and subterminal area are pale brown. (5) ab. *grisea*, Warr.-Stz., plt. 54 b, a ♀ from Uralsk, entirely dark grey and pale grey without any brown or fuscous tint, the lines black. (6) ab. *laeta*, Obrthr., plt. 54 c, from Algeria, is brighter than S. European examples; the medium area dusted with white, with the subterminal line whitish, and the annulus of the reniform and the spots before and below it are white.

Drdt.-Stz., *Supp. Pal. Noct.*, III, 212 (1935), recorded ab. *demaculata*, has stigmata suffused with ground colour, and not white. Near Berlin. ab. *fortes*, Schaw., is heavily suffused with black-brown, base, central and marginal areas appearing thus, only the stigmata and their surrounds remaining pale. The band of the hindwing more unduly black. Bosnia. ab. *obscura*, Obthr., very dark with white markings practically submerged. Algeria and Tunis. Austria. ab. *atra*, Spuler, still darker, red-brown, forewings, and thorax are completely blackened. ab. *pomerana*, Dustr., melanistic, with black hindwing and only the reniform is faint and scarcely visible with dark grey. ab. *purpurea*, Obthr., more intensive coloration of markings. Hindwings very dark.

Tutt gave a good epitome of all the characters of this grand species, which were available for variation, and which were disclosed in the examples which came under his notice. He gave the Linnean description (767), and quoted Gn., Treit., and the Russian entomologist, Fischer and Wald. But he gave no named forms.

Of the Variation Barrett said:

Variable in the depth of ground colour of the forewings as already indicated, still more so in the depth and extent of dark clouding, which in some examples is hardly existent, in others is so deep and extended that the white about the stigma is obliterated; while in other specimens, otherwise extremely dark, this shows up clearly and conspicuously. One of the most beautiful forms is strongly tinged with soft yellow-brown, and has oval spots of orange-ochreous between the second and subterminal lines. Sometimes in the female especially, the basal and dorsal region of the hindwings is tinged with black. In the collection of Mr S. J. Capper is a specimen having the black band of the hind-wings of nearly double its usual width.

ab. *variegata*, Lempke, *Tijdskr.*, XC, VIII, p. 101, No. 549.

ORIG. DESCRIPT.—“The central area of the forewings paler, greyish.”

ab. *rosea*, Lempke, (1905), *Tijdskr.*, XC, VIII, p. 10.

ORIG. DESCRIPT.—“Ground colour of forewings rose tinted.”

ab. *desponsa*, Schultz., *Ent. Zt.*, XV, 94 (1906).

ORIG. DESCRIPT.—“Alis post flavescensibus. Variation as this occurs to the red of *Catocala nupta*. It is more seldom found in this species. The name is intended to include old forms of the red-yellow character, a carmine-red, but of rare occurrence.”

[Warr.-Stz., *Pal. Noct.*, III, 302, (1913).]

DESCRIP.—“The red of hindwing is either wholly yellow or partially changed to that colour; but example of such change in this species is much rarer than in *nupta*.]

Spuler, *Schmett. Europas*, I, 316, (1907), plt. 58, f. 5, gave a short account of this species, and described a form not hitherto known and not named. Later, in 1913, it was named by Warr.-Stz. as ab. *fasciata*, Splr., gave no further forms in the text, but in the Appendix, p. 367, he added the following note, ab. *atra*.

Dilecta: es kommen auch auf den Ufln und dem Vorderkörper ganz geschwärzte Aberrationen vor: ab. *atra* (die Schwarze).

Sponsa: auch hier sind Exemplare wie die oben von dilecta angegebenen beobachtet, man benenne sie ebenso.

Dilecta: There also occur aberrations with the wings and the fore part of the body quite black.

Sponsa: Also examples like the above have been observed, they are named the same.

(I) race *laeta*, Obthr., *Bull. Soc. Ent. Fr.*, 346, (1907).

ORIG. DESCRIPT.—“Generally much larger than the *sponsa* of France, with the upper wings well mixed with grey, white, and clear yellow, somewhat like the Japanese form *dula*, Bran. The white parts produce a very varied effect, are more scattered over the forewings of *laeta*, and seem spread in patches less large than the whitened examples of *dula*.” From Yakouren, Algeria.

ab. *florida*, Schultz., *Ent. Zeit.*, XXIII, 169, (1909).

ORIG. DESCRIPT.—“A sharply marked handsome aberration with very pale coloured forewings, which is striking by the considerable extension of the grey-white powdering in the discal area of the forewings. The whole basal area of the forewing is pale-brown coloured, far lighter than in the usual form of the species; the middle area shows over its whole surface (from the costa to the inner margin) grey-white powdering. The outer half of the marginal area also shows similar coloration, while the inner half of it, margined by the black-dentate line towards the base, bears the same colour as the basal area.”

ab. *fasciata*, (Splr.), Warr.-Stz.; Splr. described a form which he did not name, *Schmett. Europas*, I, 316; this was named ab. *fasciata* by Warr.-Stz. in 1913: *Pal. Noct.*, III, 302, pl. 54 b.

DESCRIP.—“Examples in which the median space between the inner and outer lines is prominently paler grey than the other areas are.”

ab. *grisea*, Warr.-Stz., (1913), *Pal. Noct.*, III, 303.

ORIG. DESCRIPT.—“♀ form. In the Tring Museum. Bred. Uralsk. Entirely dark grey grizzled with pale grey, without any brown or fuscous streaks. The lines black.”

ab. *demaculata*, Heinr. Deutsch. *Ent. Zt.*, (1916), p. 523, [Drdt.-Stz., 23].

DESCRIP.—“The stigmata suffused with the ground colour and not filled in with white.” Berlin.

ab. *fortis*, Schawrd., Verhandl. Zoo.-bot. Ges. Wien, Vol. LXXI, p. 158, (1921), [Drdt.-Stz., *Pal. Noct. Supp.*, III, 212, (1935)].

DESCRIP.—Heavily suffused with black-brown base, central and marginal areas approaching these, only the stigmata and their surrounds remaining pale.

ab. *obscura*, Obthr., (1921), (18), *Lep. Comp.*, XVI, p. 224, plt. 12, fig. 16.

ORIG. DESCRIPT.—“The forewings above are agreeably varied with white.” Algeria. Tunis.

Drdt.-Stz., (1936), (5), *Pal. Noct. Supp.*, 111, 12, redescribed it.

DESCRIP.—“Very dark without any white and particularly submerged markings.”

ab. *pomerana*, Diestr., *Ditsch. Ent. Zeit.*, p. 271, (1921).

DESCRIP.—Drdt.-Stz., *Pal. Noct. Supp.*, III, p. 212, (1935), “with black hindwings and only the stigma of the reniform of forewing is faintly discernible and grey.”

ab. *purpurea*, Obthr., *Lep. Comp.*, XIX, p. 265, fig.; [Drdt.-Stz., *Pal. Noct. Supp.*, III, (1921).

DESCRIP.—“ Is darker with more intensive coloration, hindwing dark.” Morras.]

ERRATA.

The statement that *Caradrina superstes* has no claim to be considered a British insect is not correct as it was recorded in the *Ent. Record* in 1895 that Tutt took two males at Deal in 1886. He has examined the specimens and there is no doubt that they are *superstes*.

Under *Apamea secalis* a form was named *Albo-excessa* and later it is described and named *Struvei-excessa*. This latter name is the correct one and has been used by both Seitz and Lempke.

Of the British species in *Catocala* C. G. Barrett said (British Lepidoptera, VI):

C. fraxini. No comment.

C. nupta. Usually very constant in colour and markings but occasionally a remarkable exception is met with; one now in the collection of Dr P. B. Mason, at Burton-on-Trent, is magnificent, the forewings being suffused with bluish-slate, the hindwings almost black, the usual red area being wholly suffused with smoky red-black, while the bands are blue-black. This specimen was reared by Mr J. H. Smart, of Plumstead, from a larva found in that neighbourhood.

An example in which the red colour of the hindwings was replaced by blue—as in the last species—appears to have been taken at Colchester in 1889. Another has the forewings much darkened and that replaced by a red-brown.

Another, taken at Mitcham in 1888, has the forewings much darkened and the hindwings with the usual red colour replaced by a warm brown, the black bands shot with purple and a purplish glow over the entire surface. Occasional specimens have the hindwings of a dull brick-red; and Mr W. West, of Streatham, has one in which they are shot with yellow.

C. sponsa. Variable in the ground colour of the forewings as already indicated, still more so in the depth and extent of dark clouding which in some examples is hardly existent; in others is so deep and extended that the white about the stigma is obliterated, while in other specimens otherwise extremely dark this shows up clearly and conspicuously.

One of the most beautiful forms is strongly tinged with soft yellow-brown, and has oval spots of orange-ochreous between the second and subterminal lines. Sometimes in the female especially, the basal and dorsal region of the hindwings is tinged with black. One having the black band of the hindwing nearly double the normal width is in Mr Capper's collection.

C. promissa. Hardly variable except in the depth and extent of dark shading on the forewings and in the presence or absence of a light brown dusting or shading in the hinder area.

Promissa Esp. (1787), *Schmett.*, IV, plt. 95, p. 116. [Warr.-Stz., *Pal. Noct.*, III, 308, (1913), plt. 56, dealt with the typical form as being smaller].

ab. *conuncta* Esp., (1787), l.c., dealt with and described as a species by Warr.-Stz., *Pal. Noct.*, III, 308, (1913).

mnesta Hb., (1809-1813), *Noct.*, 569, when Hb.'s figure was compared with Esper's fig. it was seen they were identical.

ab. *rosea* Tutt. (1892), *Brit. Noct.*, IV, p. 55, has the abdomen red like the hindwing, as recorded by Guenée.

ab. *obsoleta* Schultz, *Ent. Zeit.*, (1906), p. 95. "The black bands of the hindwing instead of being concisely marked as usual are diffusely edged, and run into the red ground colour, giving the whole wing a dark appearance."

ab. *ochracea* Obthr., (1907), *Bull. Soc. Ent. France*, p. 346, from Valais and Silesia, has the hindwing pale yellow-ochreous in place of red. [Warr.-Stz., *Pal. Noct.*, III, p. 308, (1913)].

ab. *hilaris* Obthr., *Bull. Soc. Ent. France*, (1907), p. 346, described as a sp., and was described in (1913) by [Warr.-Stz., *Pal. Noct.*, p. 308].

promissa, Esp. (1787), *Schmett. Noct.*, IV, plt. 95, p. 116 (*mnesta* (1809-1813), syn.].

As the recognition of *promissa* is a difficult and uncertain matter, it is useful to insert a list of figures.

Esper., *Schmett. Noct.*, IV, plt. 95.

Ernst. Engr., *Pap. de l'Eur.*, VIII, 6 beautiful figures.

Hubner, *Noctuidae*, Pl. 123, fig. 569.

Duponchel, *Hist. Nat. Supp.*, I, plt. XLVI.

Humphreys and Westwood, *British Moths*, plt. LVI, fig. 3.

Kirby, *European Butterflies and Moths*, plt. XLIII, fig. 6.

Berge (Rebel) *Schmetterlingsbuch*, 1910, plt. XXXVIII, fig. 6.

South, *Moths of the British Isles*, II, plt. LXXXIV, fig. 2.

Seitz, *Pal. Noct.*, III, plt. 56, al.

Spuler, *Schmett. Europas*, III, plt. 53, fig. 11.

APPENDIX TO VOLUME III.

To *C. vetusta*, p. (218) add:

ab. *unicolor* Lempke, *Tijd. v. Ent.*, 323 (1941).

ORIG. DESCRIPT.—"Forewings unicolorously brownish-yellow, the dark markings fail almost wholly, with the exception of the reniform and the cuneiform spot."

C. exsoleta.

ab. *demaculata* Lempke, *Tijd. v. Ent.*, 323 (1941).

ORIG. DESCRIPT.—"The black cuneiform spots are absent."

To *C. solidaginis*, add:

ab. *confluens* Lempke, p. 325 (1941).

To *C. umbra*, p. (242), add:

ab. *suffusa* Lempke, *Tijd. v. Ent.*, 342 (1941).

ORIG. DESCRIPT.—"Ground colour of the forewings suffused with red-brown and therefore darker; the marginal band of the hindwing is also blacker."

To *H. dissimilis*, p. (197), add:

ab. *confluens* Evers.

To *H. oleracea*, p. (200), add:

ab. *albomaculata* Lempke, *Tijd. v. Ent.*, p. (228) (1941).

ORIG. DESCRIPT.—"The orbicular stigma wholly filled with white sharply contrasting."

To *C. pisi*, p. (204), add:

ab. *pulchra*, Pl. X (1), fig. 6, Cockayne, *Ent. Record*, 58, 74 (1946).

ORIG. DESCRIPT.—"Forewing—from the base to the central fascia the ground colour is pinkish-white crossed by the purplish-red basal and antemedian lines, which are united by longitudinal lines of the same colour running along the costa, median nervure, and inner margin; the orbicular stigma and all other markings are absent; the purplish-red median fascia is quite straight and distinct, the position of the reniform by shown only by the dark line forming the external border and this is continuous with the inner part of the postmedian line. The rest of the wing is normal. The two clear transverse bands of pinkish-white and the absence of stigmata and secondary markings make it a very remarkable and beautiful aberration."

Type ♂. Slichichan, Skye. Bred v. 1927; W. S. Gilles.

To *H. thalassina*, p. (209), add:

ab. *grisea* Foltin.—9.

ORIG. DESCRIPT.—"Is a clear grey chalk form from the northern alpine chalk district."

ab. *demaculata*, Nordstr. *Sven. Fjarl.* 167 (1939).

DESCRIP.—"With the three stigmata completely absent."

Gn. Hist. Nat., VI (2), 178 (1852), under the name *marginata* Klém, dealt with the species which we now call *umbra* Hufn. We treated *umbrago* Esp., *conspicua* Bork., *marginago* Haw., and *chrysographa* Haw. as synonyms. He was of opinion that *marginata* Don was not this species but *purpurina* Esp.

TABLE.

To find the dates of the plates and figures of the European Noctuae of Hübner's volume, *Samml. Eur. Schmett.*

The plates are numbered, there is no text.

The second table is of later date, after the publication of Hemming's Summary of Hübner's volumes acquired by the Royal Entomological Society of London.

PLATES	1- 74.	1802.	(1-345).	1800-1803.
	75- 86.	1802-1805.	(346-405).	1803-1808.
	87- 94.	1808.	(406-445).	1808-1809.
	95-139.	1808-1818.	(446-638).	1809-1813.
	140-150.	1818-1822.	(639-697).	1814-1817.
	151.	1823.	(698-703).	1818-1822.
	152-160.	1826-1828.	(704-752).	1823.
	161-169.	1828-1833.	(753-802).	1823-1834.
	170-176.	1834.	(803-839).	1835-1836.
	177-185.	1834-1841.	(840-882).	1837-1841.

AN ALTERNATIVE TABLE.

Group.	Plate.	Figures.
I.	1- 74.	1-345.
II.	75- 86.	346-405.
III.	87- 94.	406-445.
IV.	95-139.	446-638.
V.	140-150.	639-697.
VI.	151.	698-703.
VII.	152-160.	704-752.
VIII.	161-169.	753-802.
IX.	170-176.	803-823.
X	177-185.	824-882.

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ENTOMOLOGIST'S RECORD, VOL. LXI.

15/VII/1950

EXCHANGES.

Subscribers may have Lists of Duplicates and Desiderata inserted free of charge. They should be sent to H. W. ANDREWS, Spring Cottage, Smugglers Lane, Highcliffe, Christchurch, Hants.

Wanted—Dipterous parasites bred from Lepidopterous larvae or pupae, or from any other animal.—*H. Audcent, Selwood House, Hill Road, Clevedon, Somerset.*

Wanted.—I need specimens of *Lycaena (Heodes) phlaeas* from all parts of the world, particularly Scandinavia, Russia, Siberia, Madeira, Canaries, N. Africa, Middle East counties, and E. Africa; also varieties from British Isles or elsewhere. I will purchase these, or offer in exchange good vars. of British Lepidoptera or many sorts of foreign and exotic Lepidoptera.—*P. Siviter Smith, 21 Melville Hall, Holly Road, Edgbaston, Birmingham, 16.*

Wanted—Data on Distribution, Abundance, Biology, Parasitic and Predaceous Habits, etc., of the Families Empididae and Conopidae (Diptera). Data from Ireland and Scotland especially needed. Correspondence welcomed with workers on these Groups from any country.—*Kenneth G. V. Smith, Anttopa, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Seguy; *Etudes les Mouches Parasites*, tome 1, Conopides, Oestrides et Calliphorines de l'Europe occidentale, 1928. Melin; *A contribution to the knowledge of the Biology, Metamorphoses and Distribution of the Swedish Asilids*, 1923, and the single part of the *Ent. Mon. Mag.* for April 1938.—*Kenneth G. V. Smith, 38 Barrow Street, Much Wenlock, Salop.*

Wanted—Species of genus *Zygaena* from any part of Europe, set or in papers, with full data. Will exchange for cash, or for literature, or lepidoptera of India, Africa or Europe. I have a number of pupae of *P. machaon* and *D. euphorbiae* from Malta, which will emerge in May and in March respectively, for exchange also.—*H. M. Darlow, 120 Totley Brook Road, Totley Rise, Sheffield.*

Wanted—Eggs, Larvae, Pupae, or Imagines of any British Butterflies, except Common Whites for research into breeding. Hibernating forms especially welcome at present. Recompense gladly made.—*R. Warwick, University, Manchester, 13.*

For Disposal—A Collection of 650 set specimens of Indian Lycaenidae, named and with full data, as a whole or in part, in two store-boxes. Would exchange for British Bombyces, Noctuids and Geometrids.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

Wanted this coming season—Ova, larvae and pupae of *Abraxas grossulariata* and *Abraxas ultima (sylvata)*, for cash or exchange.—*Chas. B. Antram, F.R.E.S., Clay Copse, Sway, Lymington, Hants.*

For Disposal—Several thousand Coleoptera, British, N. Nigerian, S. African, etc., from collection of late Dr Bucknill. Would exchange for British Lepidoptera or store boxes.—*R. A. C. Redgrave, 14a The Broadway, Portswood, Southampton.*

Duplicates.—Irish: Napi, Cardamines, Sinapis, Phlaeas, Icarus, Egerides, Megera, Jurtina, Tithonus, Hyperanthus—all this season (1949). Desiderata.—Numerous to renew.—*L. H. Bonaparte Wyse, Corballymore, Co. Waterford.*

For Sale—Tutt's "Hints for the Field Lepidopterist," 3 volumes.—*W. J. Watts, 42 Bramerton Road, Beckenham, Kent.*

Wanted.—Urgently required for laboratory work this year: larvae (any stadium), or fertile eggs, of *Stauropus fagi*, L. Any reasonable price will be paid.—*P. B. M. Allan, 4 Windhill, Bishop's Stortford, Herts.*

Communications received :—O. Querci, H. Donisthorpe, Malcolm Burr, Surg.-Lt. Comm. H. M. Darlow, D. G. Sevastopulo, R. J. R. Levett, E. C. S. Blathwayt, E. P. Wiltshire, A. E. Wright.

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MEETINGS OF SOCIETIES.

Royal Entomological Society of London, 41 Queen's Gate, S.W.7: Jan. 17th, 1951 (Annual Meeting), at 5.30 p.m., Feb. 7th. *South London Entomological and Natural History Society*, c/o Royal Society, Burlington House, Picadilly, W.1.: Jan. 10th, 1951. *London Natural History Society*: Tuesdays, 6.30 p.m., at London School of Hygiene or Art-Workers' Guild Hall. Syllabus of Meetings from General Secretary, H. A. Toombs, Brit. Mus. (Nat. Hist.), Cromwell Road, S.W.7 *Birmingham Natural History and Philosophical Society—Entomological Section*. Monthly Meetings are held at Museum and Art Gallery. Particulars from Hon. Secretary, H. E. Hammond, F.R.E.S., 16 Elton Grove, Acocks Green, Birmingham.

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